Chhetri Academy

chhetriacademy.com

GCSE MATHS

Ratio, proportion and rates of change

Edexcel 1MA1 | Subtopic collection Topic 36

Converting units

Foundation tier

Answers and examiner comments

91	2010-2025	Foundation
question groups	available papers	tier

Using this booklet

1. Answer numbers match the companion question booklet.
2. Follow the original question number on marking tables.
3. Examiner comments are included where available.

Name _____ **Date** _____

Some entries use full source marking material in an appendix. Any unavailable mark schemes are identified beside the relevant answer.

Original question 14

The full source mark scheme begins on page 126. Use the original paper code, tier and question number shown above.

Question	Working	Answer	Mark	Notes
9 (a)		48	1	B1 for an answer in the range 47.5 to 48.2
(b)		25	1	B1 cao
(c)	32 × 5 16 × 10 100 × 1.6	155 to 165	2	M1 for complete method reading from graph then multiplying by a suitable scale factor. Eg 1.6 × 100, 8 × 20, 16 × 10, 32 × 5, 40 × 4, 48 × $3\frac{1}{3}$ or valid use of answer to (a) or (b) A1 for answer in the range 155 to 165 or ft on their answers to either (a) or (b)

Original question 12

The full source mark scheme begins on page 142. Use the original paper code, tier and question number shown above.

Question	Working	Answer	Mark	Notes
9 (a)		6.40 to 6.80	1	B1 for answer in the range 6.40 to 6.80
(b)		3.40 to 3.80	1	B1 for answer in the range 3.40 to 3.80
(c)	Using an initial value of $n $n = €(n÷1.4) converts $ to € €(n÷1.4) = £((n÷1.4)÷1.1) converts € to £ $65 = £((n÷1.4)÷1.1) x (65÷n) scales to £65	40 to 44 inc	4	M1 for method to find 2 matching figures for dollars and euros. May be calculated or from graph. (To check accuracy if values read from graph, apply exchange rate of 1€ : $1.4 and accept correct value in euros ± 1€) M1 for method to find 2 matching figures for euros and pounds. May be calculated or from graph. (To check accuracy if values read from graph, apply exchange rate of £1:1.1€ and accept correct value in pounds ± £1) M1 (dep on award of at least one other M1) for using 65 ÷n where n is initial value in dollars used. A1 for answer in range 40 to 44 inclusive

Question		Working	Answer	Mark	Notes
10	(a)		16	1	B1for answer in range 15.5 to 16.5
	(b)		2.4	1	B1for answer in range 2.3 to 2.5
	(c)(i)		Debbie	1	B1 for Debbie
	(c)(ii)		Correct reason	1	C1for Debbie in Part (i) with a valid explanation e.g. It is higher **or** with a correct conversion ± 1 sq or Stefan in part (i) with an incorrect conversion but valid explanation Note: 6 mph = 9.6 km/h (accept 9-10) 10.5 km/h = 6.5625 mph (accept 6.4 – 6.8)

Question		Working	Answer	Mark	Notes
11	(a)		**0**, 1.20, 6, **12, 18**, 24, 30, **36**	2	B2 for a fully correct table [B1 for 2 correct entries]
	(b)		Single line from (0, 0) to (30, 36)	2	B2 for a fully correct graph [B1 for at least 4 points plotted correctly or for a single line from (0,0) or for a short straight line segment joinning any two correct points]
	(c)	250 × 1.2 OR 30 × 10 from table Or for values read from the graph and used	300	2	M1 for correct use of any point the table or any point on the graph, eg 250 × 1.2 or 30 × 10 oe A1 **ft** for 300
*12		630 ÷ 3 = 210 630 – 210 = 420 100 + 30 × 12 = 100 + 360 = 460	Arnold's Computers (since it is £40 cheaper there)	4	M1 for 630 – 630 ÷ 3 oe or 420 seen M1 for 100 + 30 × 12 oe or 460 seen A1 for 420 and 460 C1 (dep on m1) for drawing a correct conclusion from their two computer prices

5MB2F_01

Question		Working	Answer	Mark	Notes
13	(a)	20 + 28 10 × 8/5 = 16 60 – 16 OR 60 × 5/8 = 37.5 37.5 – 10	48 44 km or 27.5 miles	1 3	B1 cao B1 for 5 miles = 8 km or equivalent statement or use of conversion factor 8/5 or 5/8 M1 for 10 × '8/5' (= 16) or 60 × '5/8' (= 37.5) A1 for 44 km or 27.5 miles, accept76 km or 47.5 miles (units must be quoted)

12	(a)		4.8	1	B1 for answer in range 4.6 – 5
	(b)		37.5	2	M1 for a valid method eg reading from graph for 6 km then ×10 A1 for answer in range 35 – 40 **OR** M1 for use of conversion factor $60 \times {}^{5}/_{8}$ oe A1 for answer in range 35 – 40

1MA0_2F

Question		Working	Answer	Mark	Notes
25	(a)		51	3	M1 200 × 25.82 (= 5164) A1 for 5164 or 5200 or 5100 or 51.64 or 51.6(0) or 5160 or 52 A1 for 51 **OR** M1 for 100 ÷ 25.82 (3.87…) and 200 ÷ '3.87…' (=51.64..) A1 for 5164 or 5200 or 5100 or 51.64 or 51.6(0) or 5160 or 52 A1 for 51 cao
	(b)		15.49	3	M1 for 400 ÷ 25.82 A1 for 15.4918… A1 for £15.49 or £15.50 **OR** M1 for 4 × '3.87…' from (a) A1 15.4918… A1 for £15.49 or £15.50

1MA0_2F

Original question 6

The full source mark scheme begins on page 157. Use the original paper code, tier and question number shown above.

11	(a)		Graph drawn	2	B2 for a correct straight line from \$0 to \$60 (B1 for at least 4 points plotted accurately or line through at least 4 of the points from the table)
	(b)		37.50 33.33	2	B1 for value in the range 37 – 38 or ft from (a) (±1sq) B1 for value in the range 33 – 34 or ft from (a) (±1sq)

5MB3F_01

Question		Working	Answer	Mark	Notes
15	(a)		32	1	B1 cao
	(b)	e.g. $20 = £12.50 $100 = 5×£12.50 = £62.50 £62.50 – 60 = £2.50	£2.50 OR $4	3	M1 for a correct method to convert $100 to £, e.g. 5× '12.50' (= 62.50) ('12.50' is their reading from the graph at $20) M1 (dep) for '62.50' – 60 A1 for £2.5(0) (units must be stated) **OR** M1 for correct method to convert £60 to $, e.g. 3×32 (=96) or ft their answer to part (a) M1 (dep) for 100 – '96' A1 for $4 (units must be stated)

11	(a)		cm	2	B1 for centimetres or cm or millimetres or mm
			gallons		B1 for gallons (accept pints)
	(b)(i)		4000	2	B1 cao
	(ii)		3.5		B1 for 3.5 oe

3	(a)(i)		7 30	3	B1 for (0)7 30 or 19 30 or half past 7 oe (ignore am or pm)
	(ii)	9.26 – 7.30 or 7 30 to 8 30 min 8 to 9 1 hour 9 to 9 26 <u>26 min</u>	1 hour 56 minutes		M1 for a valid attempt to work out the difference between '7 30' and 9 26 eg. from 9.26 – '7.30' or by splitting the interval and adding A1ft for 1 hour 56 minutes or 116 minutes or 1h 56 m or 1 h 56 or 116 m or 1:56 SC B1 for 1.56
	(b)		8.6	1	B1 for 8.6 oe

<table>
<tr><th colspan="2">Question</th><th>Working</th><th>Answer</th><th>Mark</th><th>Notes</th></tr>
<tr><td>11</td><td>(a)</td><td></td><td>10</td><td>1</td><td>B1 cao</td></tr>
<tr><td></td><td>(b)</td><td></td><td>15</td><td>1</td><td>B1 14.8 - 15.2</td></tr>
<tr><td></td><td>(c)</td><td>(a) ÷ 6 × 64 or
Read from graph and ×</td><td>103 to 110</td><td>2</td><td>M1 for valid method eg Read from £8 and × answer by 8
<table><tr><td>£</td><td>£</td><td>Calc</td><td>CHF</td></tr><tr><td>8</td><td></td><td>8 × 13</td><td>(104)</td></tr><tr><td>6</td><td>4</td><td>6 × 16.5 + 6.5</td><td>(104.5)</td></tr><tr><td>16</td><td></td><td>4 × 26.5</td><td>(106)</td></tr><tr><td>20</td><td>4</td><td>3 × 33 + 6.5</td><td>(105.5)</td></tr></table>
A1for 103 - 110</td></tr>
</table>

13	(a)	5 ÷ 2 2.5 × 4 10 × 28	280	3	M2 for 4 × 28 × 5 ÷ 2 oe (M1 for 5 ÷ 2 × 4 (=10) or 4 × 28 (=112) or 4÷2×28 (=56) oe or 560 seen) A1 cao
	(b)	140 ÷ 28 5 × 2	10	2	M1 for 140 ÷ 28 × 2 or 140 ÷ 14 oe A1 cao

5MB2F_01

7	(a)	9000 ÷ 45 = 200 200 ÷ 25 OR 9000 ÷ 45 =360 360 ÷ 45 OR 25 x 45 = 1125 9000 ÷ 1125	8	3	M1 9000 ÷ 45 (= 200) M1(dep) for "200" ÷ 25 A1 cao OR M1 for 9000 ÷ 25 (=360) M1 (dep) for "360" ÷ 45 A1 cao OR M1 25 x 45 or 1125 M1 (dep) for 9000 ÷ "1125" A1 cao
	(b)	690 × 25 = 17250 17250 + 260 = 17510 17510 ÷ 1000 17510	17.51	4	M1 690 × 25 or 17250 M1 (dep) for "17250" + 260 (=17510) M1 (dep on first M1) for "17250" ÷ 1000 (=17.25) or "17510" ÷ 1000 A1 cao

5MB3F_01

Question		Working	Answer	Mark	Notes
14	(a)		8	1	B1 for 8 (.00)
	(b)		550	4	M1 for 600 – 200 (= 400) M1 for correct method to convert '$400' to £ M1 (dep on the previous M1) for 800 – '$400' in £s A1 for value in the range 540 –560 OR M1 for correct method to convert $600 **and** $200 to pounds M1 for '375'–'125' M1 (dep on the previous M1) 800 –'250' A1 for a value in the range 540-560 OR M1 for correct method to convert £800 to dollars M1 for '1280' + 200 – 600 M1 (dep on the previous M1) for attempt to convert '$880' back to £ A1 for value in the range 540 – 560

8	(a)		46 − 49	1	B1 for 46 − 49
	(b)		43 − 46	1	B1 for 43 − 46
	*(c)		Comparative statement	3	M1 for 54 – 58 or 90×5÷8 (=56.25) M1 for '56' × 3 (=168) C1 (dep on M1) for No and eg only 162 − 174 miles OR M1 for 3×90 (=270) M1 for changing '270' to miles (=162 – 174) C1 (dep on M1) for No and eg only 162 – 174 miles OR M1 for 180÷ 3 (=60) M1 for changing '60' to kph (=94 – 98) or 54 – 58 C1 (dep on M1) for No and eg 94 − 98 kph which is above speed limit or No and eg can't go faster than 54 – 58 mph OR M1 for changing 180 miles to km (=284 – 292) M1 for '288'÷90 (=3.2 hours) or 3 × 90 (=270) C1 (dep on M1) for No and eg more than 3 hours

5MB2F_01

17			150	3	M1 for 300 ÷ 20 (=15) or 200 ÷ 20 (=10) or 3 ÷ 0.2 (=15) or 2 ÷ 0.2 (=10) M1(dep) for '10' × '15' A1 cao OR M1 for 300 × 200 (=60 000) or 20 × 20 (=400) or 3 × 2 (=6) or 0.2 × 0.2 (=0.04) M1 (dep) for '60 000' ÷ '400' or '6' ÷ '0.04' A1 cao

5MB2F_01

Original question 24

The full source mark scheme begins on page 171. Use the original paper code, tier and question number shown above.

7			1.83 m or 183 cm	2	M1 for 178 + 5 **or** 1.78 + 0.05 **or** 183 **or** 1.83 A1 for 1.83 m or 183 cm (units must be correct)

13			60	3	M1 for 9 × 14 + 6 (=132) M1 (dep) for full method to convert '132' from lbs to kg using the graph **or** for '132'÷2.2 (=60) A1 for 59 – 62 OR M1 for reading off 14 lbs (= 6.2−6.5) and 6 lbs (=2.4−2.9) M1 (dep) for 9 × '6.4' + '2.75' A1 for 59 – 62 [SC B2 for 66]

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*14			Correct statement	4	M1 for 6.50 × 8 + 12 or 6.50 × 7 + 15 M1 for 6.50 × 8 + 12 and 6.50 × 7 + 15 A1 for 64 and 60.5(0) C1 (dep on first M1) for correct statement ft their figures OR M1 for 6.50 × (8−7) or 15−12 M1 for 6.50 × (8−7) and 15−12 A1 for 6.5(0) and 3 C1 (dep on first M1) for correct statement ft their figures [SC If no working shown B1 for 64 and 60.5(0) **or** B1 for 6.5(0) and 3]

2	(a)		3.5	1	B1 oe
	(b)		2400	1	B1 cao

12	(a) (b)		5 60	1 2	B1 for 5 M1 for converting £ to Euros on the graph and multiplying appropriately e.g. £10 = 12euros and 5 × 12 A1 for 60

PAPER: 5MB2F_01

9		1.9 km or 1900 m	3	M1 for 1.25 × 1000 (= 1250) **or** 650 ÷ 1000 (= 0.65) M1 for "1250" + 650 or 1.25 +"0.65" A1 for for 1.9 km or 1900 m

18	80 litres ≈ 18 gallons or 16 gallons ≈ 72 litres	A with correct figures	3	M1 for reading from the graph eg. 8 gallons = 36 litres; 20 litres = 4.4 gallons M1 for a complete method to convert either 80 litres into gallons or 16 gallons into litres e.g. 80 litres = "4.4" × 4 gallons or 16 gallons = "36" × 2 litres A1 for car A with correct figures in range 17.5 –18.5 gallons or 64 – 72 litres

PAPER: 1MA0_2F

Question	Working	Answer	Mark	Notes
*19		Small with correct figures for comparison	4	M1 for one calculation e.g. 6.5 ÷ 30 (=0.216...) **or** 8.95 ÷ 40 (=0.22375) **or** 10.99 ÷ 50 (=0.2198) M1 for all three calculations e.g. of 6.5 ÷ 30 (=0.216...) **and** 8.95 ÷ 40 (=0.22375) **and** 10.99 ÷ 50 (=0.2198); A1 for 0.216... **and** 0.22375 **and** 0.2198... can be rounded or truncated as long as they remain different C1 (dep on M1) for conclusion ft from three comparable figures [could use different figures relating to 30, 40, 50] **OR** M1 for one calculation e.g 6.5 × 20 (=130) **or** 8.95 × 15 (=134.25) **or** 10.99 × 12 (=131.88) M1 for three calculations e.g. 6.5 × 20 (=130) **and** 8.95 × 15 (=134.25) **and** 10.99 × 12 (=131.88) A1 for 130 **and** 134.25 **and** 131.88 can be rounded or truncated as long as they remain different C1 (dep on M1) for conclusion ft from three comparable figures [or any other calculations leading to comparable figures e.g. cost of 600 plants or comparing small and medium and small and large e.g. 120 plants and 150 plants separately] **Or** M1 for one calculation e.g 30 ÷ 6.5 (= 4.615…) **or** 40 ÷ 8.95 (= 4.469…) **or** 50 ÷ 10.99 (= 4.549…) M1 for three calculations e.g. 30 ÷ 6.5 (= 4.615…) **and** 40 ÷ 8.05 (= 4.469…) **and** 50 ÷ 10.99 (= 4.549…) A1 for 4.615… **and** 4.469… **and** 4.549… can be rounded or truncated as long as they remain different C1 (dep on M1) for conclusion ft from three comparable figures [or any other calculations leading to comparable figures]

11	(a)		0.8 drawn	1	B1 cao
	(b)	$\frac{3}{4}+\frac{3}{4}=1\frac{1}{2}$ 1.500 – 0.8 = 0.7 0.7 × 1000 OR $\frac{3}{4}+\frac{3}{4}=1\frac{1}{2}$ $1\frac{1}{2}$ kg = 1500 g 0.8 kg = 800g 1500 – 800 OR 0.8kg = 800g $\frac{3}{4}$ kg = 750g 800 – 750 = 50 750 – 50	700	4	M1 For a complete method to find the weight of two puddings M1 For a complete method to find the difference of 'weight of two puddings' and 0.8kg M1 For a complete method to convert an appropriate weight from kg to g A1 cao OR M1 For a complete method to find the difference between 0.8 kg and $\frac{3}{4}$ kg M1 For a complete method to find the difference between $\frac{3}{4}$ kg and '0.8-$\frac{3}{4}$' M1 For a complete method to convert an appropriate weight from kg to g A1 cao

PAPER: 5MB2F_01

Question		Working	Answer	Mark	Notes
9	(a)		Graph drawn	2	B2 for correct straight line from (0,0) to (10,25) (B1 for at least 3 points plotted correctly or a line through at least 3 of the points from the table)
	*(b)		Kate with comparison	3	M1 for an attempt to convert 62 inches to cm (eg 15×10 + 5) or convert 150 cm into inches (eg 10 × 6) A1 for 60 (inches) or 155 (cm) C1 (dep M1) for Kate with comparison eg '62' > 60 or '155' > 150 ft from a straight line segment

Question		Working	Answer	Mark	Notes
17			27	4	B1 for correct conversion of units eg 0.76(0) eg 25 000 eg 4300 M1 for taking the weight if 1 empty box into account eg 25 – 4.3 or a complete method to find number of plates, ignoring the box, and rounding down M1 for a complete correct method (before rounding down) eg 27.2(368...) A1 cao

18	(a)		2600	1	B1 for 2600
	*(b)	£100 1300 rand 3700 rand £285 Computer 4680 rand Watch 5200 rand Camera 4875 rand	computer, camera	3	M1 for method to convert 3700 rand into £ or for changing one amount in pounds into rand M1for a complete method to compare total money Simon has with the cost of each item C1 (dep M2) for correct conclusion with correct figures e.g.£383 - £386 or 4950 rand to 5050 rand

PAPER: 1MA0_2F

Paper: 5MB2F_01

Question		Working	Answer	Mark	Notes
9	(a)		25	1	B1 cao
	(b)		56	1	B1 cao
	*(c)		Yes 200>180 oe	4	M1 for converting using figures from the graph or for 5 miles = 8 km oe M1 for correct method to convert 240 km into miles (=150 miles) or to convert 350 miles into km (= 560 km) or to convert 180 miles into km (= 288 km) M1 (dep on M2) for correct method for comparison eg 180 miles with 350 − 150 (= 200) miles eg 288 km with 560 − 240 (= 320) km C1 for a correct statement that she will have to stop oe with appropriate supporting evidence eg Yes and 200 miles is to far eg Yes and 330 < 350 eg Yes and 20 miles under" oe eg Yes and 320 > 288

Paper: 5MB3F_01

Question		Working	Answer	Mark	Notes
10	(a)		graph drawn	2	B2 for correct straight line from 0 to 8 gallons (B1 for at least 4 points plotted accurately or line through at least 4 of the points from the table)
	(b)		22 – 24	1	B1 for 22 – 24 or ft from graph in (a)
	(c)		7.0– 7.4	1	B1 for 7.0 – 7.4 or ft from graph in (a)

13	(a)		31.25	2	M1 for complete method eg 125 ÷ 4 or 25 + 12.5 ÷ 2 A1 cao
	*(b)		France with comparison	3	M1 for method to convert €100 to pounds eg 20 × 4 A1 for (£)80 C1 (dep M1) for correct comparison with correct units OR M1 for method to convert £90 to Euros eg (£90=)125 − 12.5 (=112.5) A1 for (€)112.5(0) C1 (dep M1) for correct comparison with correct units

Paper: 5MB3F_01

10		1½ cm grid. Inside measurements of squares are 1.4 cm. Right axis labelled	

PAPER: 5MB3H_01

12	(a)		35 – 35.5	1	B1 for answer in range 35 – 35.5
	(b)		6.5 – 7.0	1	B1 for answer in range 6.5 – 7.0
	*(c)		No	4	M1 for adding the four weights (= 1280) M1 for a correct method to convert using graph or other means A1 for 2810 – 2825 for converted weight C1 ft (dep on M1) for a correct conclusion for their converted total weight OR M1 for a correct method to convert each weight using graph or other means [792, 660, 616, 748] M1 for adding converted weights A1 for 2810 – 2825 for converted weight C1 ft (dep on M1) for a correct conclusion for their converted total weight OR M1 for adding the four weights (= 1280) M1 for a correct method to convert 2800 pounds to kg using graph or other means A1 for 1270 – 1275 C1 ft (dep on M1) for a correct conclusion for their converted maximum weight NB: answers from (a) or (b) could be used in part (c)

PAPER: 5MB2F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
*13			Cheaper by tram	4	M1 for 3.40 × 4 (= 14.00) M1 for 2.20 + 1.20×10 (= 14.20) A1 for (£)14 and (£)14.20 C1 (dep on at least M1) for correct conclusion based on their calculations OR M1 for 2.20 + 1.20×10 (= 14.20) M1 for "14.20" ÷ 4 A1 for (£)3.50 and (£)3.55 C1 (dep on at least M1) for correct conclusion based on their calculations

6	(a)		2300	1	B1 cao
	(b)		35	1	B1 cao
	(c)		27	1	B1 cao

PAPER: 5MB3F_01					
Question		Working	Answer	Mark	Notes
*7			Enough bags Not enough bricks	4	M1 for a correct method to find bricks or mortar for $8m^2$ eg 8×60 (=480) oe or 8×2.4 (=19.2) oe M1 for a correct method to find bricks and mortar for $8m^2$ eg 8×60 (=480) oe and 8×2.4 (=19.2) oe A1 for 480 and 19.2 C1 (dep M1) ft for enough bags and not enough bricks oe OR M1 for a correct method to find area coverage for bricks or mortar eg 450÷60 (=7.5) or 20÷2.4 (=8.3...) oe M1 for a correct method to find area coverage for bricks or and mortar eg 450÷60 (=7.5) and 20÷2.4 (=8.3...) A1 for 7.5 and 8.3... C1 (dep M1) ft for enough bags and not enough bricks oe

Original question 12

The full source mark scheme begins on page 191. Use the original paper code, tier and question number shown above.

Original question 13

The full source mark scheme begins on page 191. Use the original paper code, tier and question number shown above.

9	(a)		14 cm or 0.14 m	3	M1 for 3 × 32 + 2 × 45 (=186) oe M1 (indep) for subtraction of "wood needed" from 2 m using consistent units eg 200 – "186" (=14) or 2 – "1.86" (=0.14) A1 for 14 cm, 0.14 m or 140 mm
	(b)		44	3	M1 for 320 ÷ 14 (= 22.8... or 23) or 2 × 320 ÷ 14 (= 45.7... or 46) M1 (dep) for evidence of truncating "total DVDs" **down** to integer value, e.g. 22.8... to 22 or 45.7... to 45 A1 cao

PAPER: 1MA0_2F

11		06 57 06 57 07 19 07 19 07 10 07 10 07 33 07 33 07 45 07 58 07 45 07 58 08 50 09 27 08 50 09 27 0920 09 57 09 20 09 57	Fully correct schedule	3	B1 for 06 57 or 07 19 with correct arrival time in Peterborough **or** for 07 45 or 07 58 with associated arrival time in York B1 for fully correct departure times and arrival times for 2 train journeys that enable travel from Stamford to York to arrive by 0930 B1 ft for arrival time at meeting 30 mins after York arrival

PAPER: 1MA0_2F

Question		Working	Answer	Mark	Notes
22			2.10 euros or £1.81	3	M1 for 2.5 × 1.16 (= 2.9) M1 (dep) for 5 – "2.9" (=2.1) A1 for 2.1(0) euros OR M1 for 5 ÷ 1.16 (= 4.31...) M1 (dep) for "4.31" – 2.50 (=1.81) A1 for £1.81

10	(a)		5.8 to 6	1	B1 for an answer in the range 5.8 to 6
	*(b)		No (supported)	3	M1 for a correct conversion of any amount (lb to kg or kg to lb) excepting that in (a) M1 (dep M1) for a complete method to convert 100 kg (from 25×4) to lb (to compare with 200 lb) or to convert 50 lb (from 200÷4) to kg (to compare with 25 kg) C1 for "no" and a comparison with a converted weight of 212 - 228 pounds or 88 - 94 kg

PAPER: 1MA0_1F

Original question 14

The full source mark scheme begins on page 207. Use the original paper code, tier and question number shown above.

Original question 15

The full source mark scheme begins on page 229. Use the original paper code, tier and question number shown above.

Original question 25

The full source mark scheme begins on page 229. Use the original paper code, tier and question number shown above.

Question	Working	Answer	Mark	Notes
14	eg 5m = 16.5ft (50m =) 10×16.5 =165ft 360 – 165 = 195ft OR eg 20ft = 6m (360ft =) 18 × 6 =108m 108 – 50 =58m	185 – 210 feet or 55 – 63 metres	3	M1 for converting ft to m or m to ft M1 (dep) for difference in heights in consistent units A1 for 185 – 210 feet or 55 – 63 metres

5MB2F/01 June 2015				
Question	**Working**	**Answer**	**Mark**	**Notes**
*15		x = 120 with correct reasons	4	M1 for (CED=) 35 M1 for (EBD=) 180–(50+35+35) (=60) A1 for x = 120 oe C1 (dep on M1) for two of 1. base angles of isosceles triangle equal 2. angles in triangle add to 180 3. angles on straight line add to 180 **OR** M1 for (CED=) 35 or (ECD=) 110 M1 for (EBD=) 110–50 (=60) A1 for x = 120 oe C1 (dep on M1) for two of 1. base angles of isosceles triangle are equal 2. exterior angle of triangle equals sum of interior opposite angles 3. angles on straight line add to 180 **OR** M1 for (CED=) 35 M1 for (ECA=) 35+35 (=70) or 50 + 'ECD' A1 for x = 120 oe C1 (dep on M1) for both of 1. exterior angle of triangle equals sum of interior opposite angles 2. base angles of isosceles triangle are equal

5MB2F/01 June 2015				
Question	**Working**	**Answer**	**Mark**	**Notes**
*16	(Cost per paperclip) 40 ÷ 50 = 0.8 90 ÷ 120 = 0.75 OR (Paperclip per penny) 50 ÷ 40 = 1.25 120 ÷ 90 = 1.33(3) OR e.g. (number of paperclip for £3.60) 9 × 50 (=450) 4 × 120 (=480)	large with correct figures	3	M1 for 40÷50 (= 0.8) or 90÷120 (= 0.75) OR 50÷40 (=1.25) or 120÷90 (= 1.33…) OR appropriate calculation that could lead to a comparative figure, e.g. 9 × 50 (=450) or 4 × 120 (=480) M1 for method to compare figures for both boxes, e.g. 40÷50 (= 0.8) and 90÷120 (= 0.75) C1 for correct comparative figures for both boxes leading to a correct comparison, e.g. 0.8 and 0.75 and large (box) or 120 paperclip (box) or 90p (box)

1MA0 1F November 2015

Question		Working	Answer	Mark	Notes
6	(a)		12	2	M1 for correct first step, eg 37 – 13 (=24) or (37 + 13) ÷ 2 (=25) oe or two weights with a difference of 13 or two weights with a total of 37 A1 cao
	(b)		44 pounds or 20 kg	4	M1 for 30 × 2.2 (=66) M1 (dep) for 110 – "66" (=44) A1 for 44 A1 (dep on first M1) for pounds **OR** M1 for 110 ÷ 2.2 (=50) M1 (dep) for "50" – 30 (=20) A1 for 20 A1 (dep on first M1) for kg

2			117 cm	2	M1 for 123−6 or 1.23−0.06 or 117 or 1.17 A1 for 117 cm or 1.17 m

Question		Working	Answer	Mark	Notes
18	(a)		correct line	2	M1 for plotting points condone one error A1 cao
	(b)		1582 grams or 54.4 ounces	3	M1 for changing to consistent units; condone misreading scales eg 1.6 ounces = 46 grams or 64 grams = 2.2 ounces M1 for complete method for total weight Eg 24 × 64 + "46" (=1582) or 24 × "2.2" + 1.6 (=54.4) A1 for 1580 – 1584 grams or 52 – 56.8 ounces

11	(a) (b)	 eg 15 lbs = 6.8 kg So, 150 lbs = 68 kg 68 + 64 = 132 kg	10.5 − 11 132	1 3	B1 for 10.5 − 11 M1 for converting 150 lbs to kg M1 for addition of 150 pounds and 64 kg in consistent units A1 for 130 − 134 kg
*12			Patterned and Textured	5	M1 for 5 + 7 + 5 + 7 (= 24) M1 for (“24” ÷ 3) × 20 (= 160) or (“24” ÷ 2) × 11 (= 132) or (“24” ÷ 2.4) × 14.5 (= 145) M1 for two of the above. A1 for 160 and 132 and 145 C1 ft (dep on M3) for Patterned and Textured from a comparison of 3 costs

PAPER: 5MB2F/01

8	(a)		300	2	M1 for using 1000 g = 1 kg or 1.7 or 0.3 seen (maybe on scale) A1 cao
	(b)		21	3	M1 for sight of 18 or 3 (maybe on scale) M1 for complete process of ("18" – 15) × 7 A1 cao

PAPER: 1MA0/1F

Original question 10

The full source mark scheme begins on page 245. Use the original paper code, tier and question number shown above.

15	(a)		66	1	B1 for 65 – 67
	(b)		125	2	M1 for complete method using graph eg 50 euros = £42; 42 × 3 A1 for 122 – 128

Original question 15

The full source mark scheme begins on page 264. Use the original paper code, tier and question number shown above.

9	(a)		8	1	B1 7.8 – 8.2
	*(b)		No with working	3	M1 for complete method to change 90 gallons to litres e.g. 10 gallons = "45" litres **and** 9 × "45" = 405 (litres) or 9 gallons = "40" litres **and** 10 × "40" = 400 (litres) A1 for answer in range 396 - 414 (litres) **or** room for 36 – 54(litres) C1 (dep on M1) for conclusion ft their answer. **or** M1 for complete method to change 450 litres to gallons e.g. 50 litres = "11" gallons **and** 9 × "11" (= 99 (gallons)) **or** 45 litres = "10" gallons **and** "10" × 10 (= 100 (gallons)) A1 for answer in range 99 to 100 (gallons) **or** room for 9 or 10 (gallons) C1 (dep on M1) for conclusion ft their answer.

Paper: 1MA0/1F

Question	Working	Answer	Mark	Notes
24	**£:** 189 ÷ 1.39= 135.97 174 ÷ 1.27 = 137.01 **SF:** 115 × 1.39 = 159.85 174 ÷ 1.27 × 1.39 = 190.44 **€:** 115 × 1.27 = 146.05 189 ÷ 1.39 × 1.27 = 172.68	London with correct comparable figures	3	M1 for method to convert one price to another currency, eg 189 ÷ 1.39 M1 for a complete method leading to 3 prices in the same currency or to figures that can be used to compare the 3 prices A1 for London and correct comparable figures. (accept rounded or truncated to the nearest unit)

Original question 11

The full source mark scheme begins on page 274. Use the original paper code, tier and question number shown above.

14	(a)	$ £ 5 2.631... 60 31.578... 196 103.157... 2744 1444.21... 2804 1475.789...	2975.79	P1 P1 P1 P1 A1	for process to find total room cost eg 196 × 14 (= 2744) for process to find total wifi cost eg 5 × 12 (= 60) for using exchange rate appropriately (could be used earlier in the question), eg "2804" ÷ 1.90 (= (£)1475.789...) or 1500 × 1.90 (= ($)2850) for process to find the total cost in £, eg "1475.79(..)" + 1500 or in $, eg "2850" + "2804" (= 5654) 2975 to 2976
	(b)		Statement	C1	Statement about the total price rising May comment that flights will not change but the rest will rise

Paper: 1MA1/3F

Paper 1MA1/1F

Question	Working	Answer	Mark	Notes
1 (a)		3.65	B1	cao
(b)		2700	B1	cao

5	(a)	350	B1	cao	Accept trailing zeros eg 350.0
	(b)	7.7	B1	cao	Accept trailing zeros eg 7.70
	(c)	320	B1	cao	Accept trailing zeros eg 320.0

7	1.94 m or 194 cm	M1 A1	for 188 **or** 0.06 **or** 194 **or** 1.94 1.94 m **or** 194 cm	 Do not accept numerical answers without the correct unit shown.

Paper: 1MA1/3F

4	1.756	B1	cao	

3	1500	B1	cao	

21	78	P1 P1 A1	for process to find the number of rand, eg 850 × 18.53 (= 15750.5) **OR** for process to find number of £, eg 200 ÷ 18.53 (= 10.79 …) (dep P1) for process to find the number of rand notes, eg "15750.5" ÷ 200 (= 78.7...) **OR** 850 ÷ "10.79.." (= 78.7...) cao	

Paper: 1MA1/3F

Question	Answer	Mark	Mark scheme	Additional guidance
12 (a)	No from correct figures	P1	for first step in process to solve the problem, eg find cost of 3 T-shirts, 25 × 3 (= 75) **or** eg find remaining money after just one purchase, eg 200 – 60 (= 140) or 200 – 25 (= 175)	Award this mark for addition of 2 or more items or for subtraction of one item or more from 200 eg 200 – 50 (= 150) etc.
		P1	for process to find total cost of trainers and T-shirts, eg 60 + "75" (= 135) **or** find total cost including cost of jacket, eg. 60 + "75" + 80 (= 215) **or** find the change after buying all 4 items, eg. 200 – 60 – 3 × 25 (= 65) oe	
		C1	for No from correct figures **Acceptable examples** No, needs 215 No, only has 65 left No, needs 15 more **Not acceptable examples** Yes ….	Figures can be given without units ($)
(b)	Explanation	P1	for a start to a method, eg. approximating 0.749 to 0.7, 0.74, 0.75 or 0.8	
		C1	for explanation **Acceptable examples** 0.7 × 60 = 42 [is an underestimate] 0.74 × 60 = 44.4(0) [is an underestimate] . **Not acceptable examples** 0.75 × 60 = 45 [is an overestimate] 0.8 × 60 = 48 [is an overestimate]	For full marks, any calculations must be correct. No statement in words is needed.

Paper: 1MA1/1F

10	16 35	P1 P1 A1	for process to find length of time in car park eg 8.40 ÷ 0.024 (= 350) **or** 0.024 × 60 (= 1.44) **and** 8.40 ÷ "1.44" (= 5.833...) for process to add "350" minutes to 10 45 eg 10 45 + 60 + 60 + 60 + 60 + 60 + 50 **or** 10 45 + "5 hours 50 minutes" **OR** for 4 35 for 16 35 **or** 435 pm	 Do not accept incorrect interpretation of time, eg 5.83 = 5 hours 83 minutes Accept 16 35 pm

Paper: 1MA1/2F

Question	Answer	Mark	Mark scheme	Additional guidance
11 (a)	19	B1	cao	
(b)	12.4 to 12.8	M1	for a complete method, eg attempts to read from the graph at a factor of 80 **and** scales up to 80 **or** attempts to read from the graph at two numbers that sum to 80 **and** finds the sum of their readings **or** 1 stone = "6"kg **and** 80 ÷ "6"	
		A1	for an answer in the range 12.4 to 12.8 **or** ft correct reading from graph	

15	80	M1 M1 A1	for converting to cm for use of scale eg 19.2 ÷ 24 (= 0.8) **or** 1920 ÷ 24 **or** [length] ÷ 24 cao	Can be done at any stage of the problem eg 19.2 × 100 (=1920) or 0.8 × 100 [length] must come from an attempt to change 19.2 metres into cm

Paper: 1MA1/2F

5	4000	B1	cao	

26	37 000	B1	cao	

9	(a)	25	B1	for 25, accept answer in range 24 to 26	
	(b)	24	M1	for 40 ÷ 10 × 6	
			A1	cao	
	(c)	Comment	C1	(dep B1 or M1) ft for comment for their results, eg the two answers are quite close **or** answer to (b) is less than answer to (a) **or** the rule gives a smaller answer	

Paper: 1MA1/3F

Question	Answer	Mark	Mark scheme	Additional guidance
1	3	B1	cao	

18	258 to 275	M1 M1 A1	for taking a correct reading from the graph that shows conversion of an amount in $ to £ for a complete method eg attempts to read from the graph at using numbers that sum to 345 **and** finds the sum of their readings eg 6 × 50 + 45 for answer in the range 258 to 275	 Must be a complete method to get to 345 Condone incorrect money notation if the meaning is clear

2	300	B1	cao	

Paper: 1MA1/1F

Question	Answer	Mark	Mark scheme	Additional guidance
1	400	B1	cao	

29	108	M1 A1	for 30 × 60 × 60 (108000 metres per hour) **or** 30 ÷ 1000 (= 0.03 kilometres per second) **or** 60 × 60 ÷ 1000 (=3.6 scale factor) cao	

4	530	B1	cao	

14	(a)	30	B1	cao	
	(b)	2238 to 2296	M1	for a complete method eg attempts to read from the graph at a factor of 80 **and** scales up to 80 using a correct scale **or** attempts to read from the graph using numbers that sum to 80 **and** finds the sum of their readings **or** attempts to read from the graph a number that they then go on to scale up to 80 using a correct scaling factor	Condone some inaccuracy in reading from the graph, which should be given to within the nearest 50g
			A1	for an answer in the range 2238 to 2296	

Paper: 1MA1/3F

27	(a)	0.008	B1	for 0.008 or 8×10^{-3}	May be awarded at any stage
	(b)	50	M1	for conversion from km to m eg 180×1000 (= 180 000) **or** for conversion from hours to seconds eg $180 \div (60 \times 60)$ (= 0.05) **or** for conversion from km per hour to metres per second, eg $1000 \div (60 \times 60)$ (= 0.277...) (Accept $(60 \times 60) \div 1000$ (= 3.6))	
			M1	for a complete process eg $180 \times 1000 \div 3600$	
			A1	cao	

3	900	B1	cao	

4	4	B1	cao	

3	700	B1	cao	

2	5	B1	cao	

Question	Answer	Mark	Mark scheme	Additional guidance
16 (a)	170	B1	for answer in the range 167 to 173	
(b)	35	M1	for correctly using readings from the graph as a factor of 1000 from the grams scale, eg 200 × 5 or 100 × 10 or 20 × 50 or 250 × 4 **or** for method to use multiples of grams and corresponding ounces readings, eg 1000 ÷ "answer to (a)" × 6 **or** 1000 ÷ grams × ounces oe	May be seen as a build-up method using multiple readings that can be read from the graph but must total 1000 grams (ounces, grams) is a point on the line
		A1	for an answer in the range 34 to 36	

2	8	B1	cao	

3	150	B1	cao	

Question	Answer	Mark	Mark scheme	Additional guidance
22	Zurich (supported)	P1	for one process to compare, eg eg Currency conversion, 3.5 × 1.25 (= 4.375) **or** 7.20 ÷ 1.25 (= 5.76) **or** finds 1g in one place £3.50 ÷ 200 (= 0.0175) **or** 7.20 ÷ 360 (= 0.02) **or** finds 200g in Zurich, 7.2 ÷ 360 × 200 (= 4.0) **or** finds 360g in London, 3.5 ÷ 200 × 360 (= 6.30) **or** finds grams per unit cost, 200 ÷ 3.50 (= 57.1..) **or** 360 ÷ 7.20 (= 50**)**	Accept figures rounded or truncated to 2sf throughout
		P1	for a complete process to find comparable figures in the same currency, eg comparing 200g in £ or francs 3.5 × 1.25 (= 4.375) **and** 7.2 ÷ 360 × 200 (= 4.0) **or** "4.0" ÷ 1.25 (= 3.20) **OR** comparing 360g in £ or francs "6.30" × 1.25 (= 7.875) **or** 3.5 ÷ 200 × 360 (= 6.30) **and** 7.20 ÷ 1.25 (= 5.76) **OR** comparing 1g in £ or francs "0.0175" × 1.25 (= 0.0218…) **and** 7.20 ÷ 360 (= 0.02) **or** £3.50 ÷ 200 (= 0.0175) **and** "0.02" ÷ 1.25 (= 0.016) **OR** comparing quantity per unit cost in £ or francs 200 ÷ 3.50 (= 57.1…) **and** 360 ÷ "5.76" (= 62.5) **or** 200 ÷ "4.375" (= 45.7…) **and** 360 ÷ 7.20 (= 50**)**	Accept working in pence Ignore incorrect units for P marks Award of this mark implies the previous mark
		C1	for Zurich supported by correct comparable values, eg 4.3(75 F) **and** 4(.0 F) **or** (£)3.2(0) **or** 7.8(75 F) **or** (£)6.3(0) **and** (£)5.76 **or** 0.021(8… F) **and** 0.02 (F) **or** (£)0.017(5) **and** (£)0.016 **or** 57(.1… g/£) **and** 62(.5 g/£) **or** 45(.7… g/F) **and** 50 (g/F)	Clear indication that bar is better value for money in Zurich supported by correct values for comparison Units not needed but if stated must be correct. Table with examples at end of mark scheme

Paper: 1MA1/2F

Question	Answer	Mark	Mark scheme	Additional guidance
11 (a)	16	B1	cao	
(b)	48	M1	for taking a suitable reading from the graph that could be used to convert, eg 25 km = 15.5 miles **or** 17 miles = 27.2 km	Allow a tolerance of one small square for the reading eg 10 km = 6 – 6.5 miles 20 km = 12.25 – 12.75 miles 25 km = 15.25 – 15.75 miles 30 km = 18.5 – 19 miles for miles to km allow 1 mile = 1.6 km 17 miles = 27 – 28 km
		M1	ft, for a complete method, eg "15.5" × 2 + 17 **or (**"27.2" + 50) ÷ 1.6	For ft, allow use of their stated conversions but they must be conversions that could have come from graph
		A1	for an answer in the range 47 – 49.5	

Question	Answer	Mark	Mark scheme	Additional guidance
13	300	B1	(indep) for process to convert to common units, eg 3×100 (= 300) or 1×100 (= 100) or 1.5×100 (= 150) or $20 \div 100$ (= 0.2) or $10 \div 100$ (= 0.1) or $75 \div 100$ (= 0.75) **or** "4.5" $\times 100^3$ (= 4 500 000) or "15 000" $\div 100^3$ (= 0.015)	This mark can be awarded at any stage One correct conversion for their process is enough for the award of this mark Working may be seen on the diagram
		P1	for finding the volume of either shape, eg $3 \times 1 \times 1.5$ (= 4.5) or [300] × [100] × [150] (= 4 500 000) **or** $20 \times 10 \times 75$ (= 15 000) or [0.2] × [0.1] × [0.75] (= 0.015) **OR** for start of the process to find the number of boxes using one dimension, eg [300] ÷ 20 (= 15) or [100] ÷ 10 (= 10) or [150] ÷ 75 (= 2) or 3 ÷ [0.2] (= 15) or 1 ÷ [0.1] (= 10) or 1.5 ÷ [0.75] (= 2)	[300] = 3 or 30 or "300" or 3000 [100] = 1 or 10 or "100" or 1000 [150] = 1.5 or 15 or "150" or 1500 [0.2] = 20 or 2 or "0.2" or 0.02 [0.1] = 10 or 1 or "0.1" or 0.01 [0.75] = 75 or 7.5 "0.75" or 0.075 May be implied by correctly dividing the areas of the corresponding faces eg $\frac{[300]\times[100]}{20\times10}$
		P1	(dep on P1) for a complete process with or without unit conversion eg "4 500 000" ÷ "15 000" or "4.5" ÷ "0.015" **or** "15" × "10" × "2"	Condone an incorrect attempt to convert volume before division
		A1	cao	

Paper: 1MA1/3F

3	6	B1	cao	

PMT

edexcel
advancing learning, changing lives

Mark Scheme (Results)

November 2010

GCSE

GCSE Mathematics (Modular) 5MB1F
Unit 1 - Foundation

PMT

Edexcel is one of the leading examining and awarding bodies in the UK and throughout the world. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers.

Through a network of UK and overseas offices, Edexcel's centres receive the support they need to help them deliver their education and training programmes to learners.

For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our website at www.edexcel.com.

If you have any subject specific questions about the content of this Mark Scheme that require the help of a subject specialist, you may find our Ask The Expert email service helpful.

Ask The Expert can be accessed online at the following link:

http://www.edexcel.com/Aboutus/contact-us/

November 2010
Publications Code UG025859
All the material in this publication is copyright
© Edexcel Ltd 2010

NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labeling conventions.

ii) *select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

GCSE MATHEMATICS 2MB01

7 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
If there is no answer on the answer line then check the working for an obvious answer.
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect canceling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.
Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

10 Probability

Probability answers must be given a fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

GCSE MATHEMATICS 2MB01

11 Linear equations
Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded.

12 Parts of questions
Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13 Range of answers
Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

Guidance on the use of codes within this mark scheme
M1 – method mark A1 – accuracy mark B1 – Working mark C1 – communication mark QWC – quality of written communication oe – or equivalent cao – correct answer only ft – follow through sc – special case dep – dependent (on a previous mark or conclusion) indep – independent isw – ignore subsequent working

PMT

GCSE MATHEMATICS 2MB01

5MB1F_01
1011

6

PMT

GCSE MATHEMATICS 2MB01

5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		8	1	B1 cao
	(b)		5	1	B1 cao
	(c)			1	B1 cao
2	(a)		Pixar	1	B1 cao
	(b)		Pixar, Tacco	1	B1 cao
	(c)		Crystal	1	B1 cao
	(d)		12.73	4	M1 for 112-100 or 12 seen M1 for $24.5\times'12'$ or sight of digits 294 Do not allow '12' to be 100. M1 (dep on one prior M1) for $9.79+'2.94'$ A1 cao

GCSE MATHEMATICS 2MB01

5MB1F_01					
Question		Working	Answer	Mark	Notes
3			e.g. 15 12 15 40 4:15pm 19 30 19 55	5	B1 for a correct departure time (one with an associated arrival time at least 30 mins before film start time) B1 for correct associated arrival time in Peterborough from a correct departure time from Bourne or Baston B1 for either 4:15pm or 5:15pm with one correct bus time) B1 for a correct departure time (at least 2hrs 44mins after film start time) B1 for correct associated arrival time in Baston
4	(a)		unlikely	1	B1 cao
	(b)		even	1	B1 cao
	(c)		impossible	1	B1 cao
	(d)		e.g. blue, blue, blue	1	B1 for two or three ‘blue’ and no ‘red’
5	(a)		Walk	1	B1 cao
	(b)		5	1	B1 cao
	(c)	$4+6+9+5+1=25$	25	2	M1 for adding the frequencies 4,6,9,5,1 or adding 5 frequencies allow one misread error Ie 4+6+9+6+1 A1 cao

PMT

GCSE MATHEMATICS 2MB01

5MB1F_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
6 (a)		6	1	B1 cao
(b)		4, 4, 7	2	M1 for identifying two of the numbers as 4 or the sum as 15 (may be implied by three numbers that sum to 15) A1 for 4, 4 and 7 in any order
7*		Diagram or chart	4	B1 for a key or suitable labels to identify boys and girls The key may be ignored if unclear provided the graph is clear, ie if different colours are used to shade in the graph. Give benefit to candidate. B1 for 5 correct labels for days clearly in the appropriate place B1 for a diagram(s) or chart(s)(combined or separate) set up for comparison, showing data for at least three days e.g. dual bar chart, back-to-back stem and leaf diagrams, pie charts, pictograms, etc C1 fully correct diagram or chart to include all axes labeled. QWC: Fully correct diagram or chart and all labelling is correct and clear.

GCSE MATHEMATICS 2MB01

5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
8	(a)	0.80×20 OR reading from graph at distance = 20 miles	16	1	B1 cao
	(b)	£20 = 25 miles $25 \times 3 = 75$ OR $60 \div 0.8 = 75$	75	2	M1 for using £20 = 25 miles oe and intention to multiply OR M1 for $60 \div 0.8$ OR M1 for reading from the graph and an attempt to scale up. Ie 37x2 or 38x2 or 12x6 or 12.5x6 or 13x6 oe And A1 72-78 inclusive
9			Types Tally Frequency	3	B3 for correct table with all three aspects Aspect 1:'method of travel' or for at least 3 of bus, car, walk, ,other etc. Aspect 2: 'tally' or tally marks or 'frequency' or 'number of people' Aspect 3: 'frequency' or frequencies or 'total' or totals or 'number of people' B2 for two aspects B1 for one aspect

PMT

GCSE MATHEMATICS 2MB01

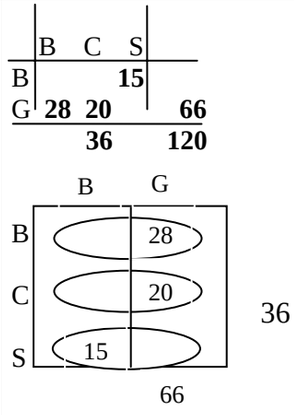
5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
10	(a)		3	1	B1 cao
	(b)	$0\times4+1\times5+2\times4+3\times7+4\times4=50$	50	2	M1 for *fx* calculated (could be implied by at least 2 correct) A1 cao
	(c)	$360°\div24=15$ Sector angles: W=150; D=90; L=120	Angles drawn, labelled	3	M1 for $360\div24$ or 15 seen or one angle correct in pie chart ($\pm2°$), ignore all labels, or one correct angle in the table A1 for any two angles correct in pie chart. Ignore labels A1 for fully correct and labelled pie chart All angles ±2º

PMT

GCSE MATHEMATICS 2MB01

5MB1F_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
11*	714 × 2 =1428 714 × 0.95 = 678.30 678.30 × 2 = 1356.60 1428 + 1356.60 = 2784.60 802 × 2 = 1604 802 × 0.85 = 681.70 681.70 × 2 = 1363.40 1604 + 1363.40 = 2967.40	Comparison	5	B1 for identifying 714 and 802 M1 for $\frac{95}{100}\times'714'$ oe or $\frac{85}{100}\times'802'$ oe M1 for 2 × 'adult' + 2 × 'child' oe for at least on e holiday A1 for 2784.6(0) and 2967.4(0) or 2785 and 2967 C1 for comparing the costs of their two holidays for 2 adults and 2 children and clearly indicating which is cheaper. Conclusion must clearly follow from working. QWC: Decision and justification should be clear with working clearly presented and attributable. (allow full marks for a candidate who has calculated the cost per day for each holiday (397.8(0) and 211.95(7..)) and compares these costs accordingly.)

GCSE MATHEMATICS 2MB01

5MB1F_01					
Question		Working	Answer	Mark	Notes
12	(a)		67	1	B1 cao
	(b)	$84-58=26$	26	2	M1 for $84-58$, accept 58 to 84 and $58-84$ A1 cao
	(c)		Two comparisons	2	Ft B1 for heart rates faster after walking , bigger median, median increase by 11 Ft B1 for heart rates more spread out after walking, bigger range, range increases by 11 Statements must be entirely true and not contradictory
13			51	4	M1 for a two-way table or Venn diagram with bowling, cinema, skating, boys and girls labelled or a list of at least two combinations clearly labelled. M1 for attempt to find an unknown eg 66 – 28 – 20, 120 – 66, 36 – 20 A1 for 16 or 18 or 54 or 23 or 33 A1 cao (Note: 36 + 15 = 51 scores no marks)

PMT

GCSE MATHEMATICS 2MB01

5MB1F_01					
Question		Working	Answer	Mark	Notes
14*		13.55 × 1.65 = 22.3575 3.10 ÷ 160 × 1000 = 19.375 OR 13.55 × 1.65 = 22.3575 22.3575 ÷ 1000 × 160 = 3.5772 OR 3.10 ÷ 1.65 = 1.8787… 1.8787…÷ 160 × 1000per kg OR $1355 \div 1000 = 1.355$ p/g 3.10 ÷ 1.65 = 187.87…p 187.87…÷ 160 = 1.1742…p/g OR 3.10 ÷ 160 = 0.019375 SF/g 13.55 × 1.65 ÷ 1000 =0.0223575SF/g	Switzerland, with correct explanation	4	M1 for a correct method to obtain two comparable weights e.g. cost of 1kg in Switzerland, ÷ 160 × 1000, × 6.25 (cost of 1 kg in England given) or cost of 160g in England, ÷ 1000 × 160 (cost of 160g in Switzerland given) or cost per gram in each country, ÷ 160 and ÷ 1000 or cost of 800g in each country M1 for converting £ to Swiss francs or Swiss francs to £ (other than £1=1.65 SFr) A1 for two correct values (using same units) for comparison C1 for Country identified from a clear attempt to use comparable weights and prices. QWC: Decision must be stated, with calculations clearly attributable

PMT

GCSE MATHEMATICS 2MB01

5MB1F_01
1011

15

PMT

GCSE MATHEMATICS 2MB01

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467
Fax 01623 450481

Email publications@linneydirect.com

Order Code UG025859 November 2010

For more information on Edexcel qualifications, please visit www.edexcel.com/quals

Edexcel Limited. Registered in England and Wales no.4496750
Registered Office: One90 High Holborn, London, WC1V 7BH

PMT

edexcel
advancing learning, changing lives

Mark Scheme (Results)

March 2011

GCSE

GCSE Mathematics (Modular) – 5MB2F
Paper 01

PMT

Edexcel is one of the leading examining and awarding bodies in the UK and throughout the world. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers.

Through a network of UK and overseas offices, Edexcel's centres receive the support they need to help them deliver their education and training programmes to learners.

For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our website at www.edexcel.com

If you have any subject specific questions about the content of this Mark Scheme that require the help of a subject specialist, you may find our Ask The Expert email service helpful.

Ask The Expert can be accessed online at the following link:
http://www.edexcel.com/Aboutus/contact-us/

March 2011
Publications Code UG026937
All the material in this publication is copyright
© Edexcel Ltd 2011

PMT

NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labeling conventions.

ii) *select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

7 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
If there is no answer on the answer line then check the working for an obvious answer.
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect canceling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.
Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

10 Probability

Probability answers must be given a fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

11 Linear equations
Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded.

12 Parts of questions
Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13 Range of answers
Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

Guidance on the use of codes within this mark scheme
M1 – method mark A1 – accuracy mark B1 – Working mark C1 – communication mark QWC – quality of written communication oe – or equivalent cao – correct answer only ft – follow through sc – special case dep – dependent (on a previous mark or conclusion) indep – independent isw – ignore subsequent working

PMT

PMT

5MB2F_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
1 (a)		Kite drawn	1	B1 Accept a rhombus, square, etc.
(b)		Parallelogram	1	B1
2 (a)		9	1	B1 cao
(b)		0.6,2.8,4.71,13.4	1	B1 cao
(c)		0.7	1	B1 cao
3 (a)		5	1	B1 cao
(b)		Line of symmetry	1	B1 for line of symmetry
4 (i)		Acute	2	B1 cao
(ii)		53°		B1 for an angle 51°-55°
5 (i)		130	2	B1 for 130 cao
(ii)		Reason		B1 for reason eg "angles on a (straight) line (sum to) 180° NB: those underlined are the essential elements of an answer.

PMT

5MB2F_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
6 (a)		3*c*	1	B1 cao
(b)		2*x* + 6*y*	2	B2 for 2*x* + 6*y* (B1 for 2*x* or 6*y*)
7 (a)		Pattern	1	B1
(b)	7,10,13,16,19,22,25,28,31,34,37,40 43,46,49; or 3*n*+4	49	2	M1 for method eg counting up in 3s (to at least pattern number 6; allow errors if intention is clear), diagram extension (ft), use of 3*n*+4 (could be shown as part of a valid calculation eg 15×3) A1 49
8	Ticket sales: 16 × 100 = £1600 Meals: 12 × 100 = 1200 Fixed costs: 230 + 150 + 30 = 410; 410+1200=1610 or 1600-230-150-30=1190; 1190-1200 = -10 Total 410 + 1200 = £1610 (<£1600) OR £1610÷100=£16.10 ticket price (>£16) OR £1600 – 410 – 1200 = - £10 (or £10 needed) OR £1600-1200 = £400 (< £410 costs)	No. £1610 >£1600 £410 >£400	4	M1 for addition of 230, 150, 30 (or + 410) (=422 or 800) M1 for 12 × 100 (= 1200) A1 for £1610 total costs or £16.10 ticket price needed. C1 (dep on at least M1) for correct comparison and statement that “£1610”>”£1600” and that costs will not be covered. OR M1 for subtraction of 230, 150, 30 (or - 410) M1 for 12 × 100 (=1200) A1 for £400 left or -£10 C1 (dep on at least M1) for correct comparison and statement that “£410”>”£400” and that costs will not be covered.

PMT

5MB2F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
9	(a)	-7 to -9	2	1	B1 Accept -2
	(b)	8 to -7	15	1	B1 cao
10	(a)	$\frac{1}{2}\times\frac{1}{5}=$	$\frac{1}{10}$	1	B1 oe
	(b)	$\frac{1}{2}+\frac{3}{8}=\frac{4}{8}+\frac{3}{8}=$	$\frac{7}{8}$	2	M1 common denominators with at least one numerator correct or an unsimplified answer, or a fraction that is not completely processed eg $\frac{1\times 8+2\times 3}{2\times 8}$ OR conversion to correct decimals: 0.5 + 0.375 A1 for $\frac{7}{8}$ or 0.875
11	(a)		12	1	B1 cao
	(b)		200 cm^3	3	M1 for 10 × 4 × 5 A1 cao B1 (indep) for cm^3

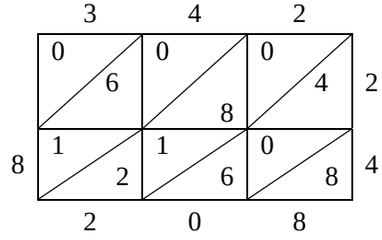
PMT

5MB2F_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
12	London: £15, £34, £26 (£75) → 450, 1020, 780 (2250) KC Prague: 450, 750, 810 KC (2010KC) → £15, £25, £27 (£67) £ to KC is ×30; KC to £ is ÷30.	Yes. Cheaper in Prague (More in London)	5	M1 conversion method (× or ÷ as appropriate) or evidence of use of graph (seen, or implied, by at least lines or evidence of conversion by marks on axes) for at least one figure. M1 (dep) conversion applied to 3 figures or totals (converted figures must be stated, marks on graph insufficient) A1 converted figures shown (all three individual items or totals converted correctly; NB: no tolerance on graph) M1 totalling converted amounts C1 (dep on at least M1) comparison of "**totals"** and correct conclusion Eg "2250KC">"2010KC", "£75">"£67" so cheaper to buy in Prague.
13	Zparts: 150 is 15 boxes; 15 × £35 = £525 CompParts: 150÷11 is 13.6 so 13 offers (150-13)×£4=137×4=£548 OR 13×11=143; 150-143=7 extra (13×10+7)=137; 137×4=£548 OR 150×4=£600 13 offers so 13 free: 13×4=52; 600-52=£548	Zparts £525 CompParts £548 so Zparts cheaper	5	M1 for 15 × £35 (= £525) M1 for attempt to account for 1 free (eg ÷11 or listing with 10 charged and one not) M1 for ×4 (may be shown as ×40) A1 for totals of £548 and £525 OR unit costs of £3.64/£3.63 and £3.50 (oe) C1 (dep on at least M1) for making comparison figures clear and giving correct deduction.

PMT

5MB2F_01								
Question	**Working**						**Answer**	**Mark**	**Notes**
14	x	-3	-2	-1	0	1	Line	3	**(Table of values)** M1 for at least 2 correct attempts to find points by substituting values of x. M1 ft for plotting at least 2 of their points (any points plotted from their table must be correct) A1 for correct line between -3 and 1 **(No table of values)** M2 for at least 2 correct points (and no incorrect points) plotted OR line segment of $2x+3$ drawn (ignore any additional incorrect segments) (M1 for at least 3 correct points with no more than 2 incorrect points) A1 for correct line between -3 and 1 **(Use of $y=mx+c$)** M2 for at least 2 correct points (and no incorrect points) plotted OR line segment of $2x+3$ drawn (ignore any additional incorrect segments) (M1 for line drawn with gradient of 2 OR line drawn with a y intercept of 3 and a positive gradient) A1 for correct line between -3 and 1
	y	-3	-1	1	3	5			

PMT

5MB2F_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
15	342 ×24 6840 1368 8208 24 ×342 7200 960 48 8208  300 40 2 6000 800 40 20 1200 160 8 4 6000+800+40+1200+160+8=8208	8208	3	M1 for a complete method with relative place value correct. Condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation. A1 cao M1 for a complete grid with not more than 1 multiplication error, addition not necessary (inside numbers) M1 (dep) for addition of all the appropriate elements of the calculation (eg outside numbers) A1 cao M1 for sight of a complete partitioning method, condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation. A1 cao

PMT

5MB2F_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
16 (a)		21	1	B1 cao
(b)		$4n+1$	2	M1 for $4n$ + k ($k \neq 1$) A1 oe NB $n = 4n + 1$ gets M1 only.
17	300 ÷ (2 + 3 + 5) × 5 = 300 ÷ 10 × 5 =	150	2	M1 for 300 ÷ (2 + 3 + 5) or 300 ×5 or 30 seen or 60:90:150 A1 cao

PMT

5MB2F_01				
Question	**Working**	**Answer**	**Mark**	**Notes**
18	LCM (40, 24) = 120 Rolls 120 ÷ 40 = Sausages 120 ÷ 24 = OR Rolls 40 is 2 × 2 × 2 (×5) Sausages 24 is 2 × 2 × 2 (×3) 40, 80, **120**, 160, 200, 240, 280 24, 48, 72, 96, **120**, 144, 168	Rolls (packs) 3 Sausages (trays) 5 Hot dogs 120	5	M1 attempts multiples of either 40 or 24 (at least 3 but condone errors if intention is clear) M1 attempts multiples of both 40 and 24 (at least 3 of each but condone errors if intention is clear) M1 (dep on M1) division by 40 or 24 or counts up multiples. (implied if one answer correct or answers reversed) A1 rolls (packs) 3, sausages (trays) 5 OR any multiple of 3,5 A1 hot dogs 120 or ft on both of their packs or ft 'common multiple' OR M1 expansion of either number into factors M1 demonstrates one of the expansions that includes 8 oe M1 demonstrates a 2nd expansion that includes 8 oe A1 cao for rolls (packs) 3, sausages (trays) 5 A1 hot dogs 120
19	Bottom / top is 5 × 10 = 50; 50 × 2 = 100; 280 – 100 = 180 Other dimensions: 10 + 10 + 5 + 5 = 30; 180 ÷ 30 =	6	4	M1 recognition that the bottom/top is 5 × 10 (= 50), 50 seen M1 for 280 – 2 × "50" (= 180) M1 for "180" ÷ "other dimensions" or valid attempt to find height using these dimensions A1 cao

PMT

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467
Fax 01623 450481

Email publications@linneydirect.com
Order Code UG026937

March 2011
For more information on Edexcel qualifications, please visit www.edexcel.com/quals

Edexcel Limited. Registered in England and Wales no.4496750
Registered Office: One90 High Holborn, London, WC1V 7BH

PMT

edexcel

Mark Scheme (Results)

June 2012

GCSE Mathematics (2MB01) Foundation
Paper 5MB1F_01 (Calculator)

Edexcel and BTEC Qualifications
Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our qualifications website at www.edexcel.com. For information about our BTEC qualifications, please call 0844 576 0026, or visit our website at www.btec.co.uk.

If you have any subject specific questions about this specification that require the help of a subject specialist, you may find our Ask The Expert email service helpful.

Ask The Expert can be accessed online at the following link:

http://www.edexcel.com/Aboutus/contact-us/

Alternatively, you can speak directly to the subject team at Pearson about Edexcel qualifications. Their contact details can be found on this link: www.edexcel.com/teachingservices

Pearson: helping people progress, everywhere
Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

June 2012
Publications Code UG032651
All the material in this publication is copyright
© Pearson Education Ltd 2012

NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labeling conventions.

ii*) select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

7 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
If there is no answer on the answer line then check the working for an obvious answer.
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect canceling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.
Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

10 Probability

Probability answers must be given a fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

11 Linear equations
Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded.

12 Parts of questions
Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13 Range of answers
Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

Guidance on the use of codes within this mark scheme
M1 – method mark A1 – accuracy mark B1 – Working mark C1 – communication mark QWC – quality of written communication oe – or equivalent cao – correct answer only ft – follow through sc – special case dep – dependent (on a previous mark or conclusion) indep – independent isw – ignore subsequent working

PMT

5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		Mary, 5, blue, dog	1	B1 cao
	(b)		2	1	B1 for 2 or ft from their table
	(c)		cat	1	B1 for cat or ft from their table
2	(a)	2 × 12	24	1	B1 cao
	(b)	e.g. 12 + 6	18	2	M1 for 4.5 × 12 – 3 × 12 or (4.5 – 3) × 12 or 12 + 6 or 6 seen "54" – "36" oe A1 cao
	(c)	2.75 × 12 × 8	2.64	3	M2 for complete method seen, "2.75×12"×8 or "12+12+9"×8 or "2.75 × 8"×12 or "33"×8 "96" + "96" + "72" or the digits 264 seen (M1 for 2.75×12 or 12+12+9 or 24+9 or "33" or 2.75×8 or 12×8 or 24×8 or 9×8 or 192 seen or 96 seen or 72 seen) A1 cao (SC M1 (12+12+8)×8 but not 32×8) Note: The method marks can also be awarded if the candidate uses 0.08
3	(i)		Impossible	3	B1 cao
	(ii)		$\frac{1}{2}$		B1 for cross marked at $\frac{1}{2}$
	(iii)		$\frac{1}{6}$		B1 for $\frac{1}{6}$ oe

<table>
<tr><th colspan="5">5MB1F_01</th></tr>
<tr><th colspan="2">Question</th><th>Working</th><th>Answer</th><th>Mark</th><th>Notes</th></tr>
<tr><td>4</td><td></td><td>e.g.
<table><tr><td>Start time</td><td>Finish time</td></tr><tr><td>(A)10 00</td><td>(10 05)</td></tr><tr><td>(B)10 05</td><td>(C)10 48</td></tr><tr><td>(10 48)</td><td>(15 11)</td></tr><tr><td>(D)15 11</td><td>(E)15 53</td></tr><tr><td>(15 53)</td><td>(F)15 58</td></tr></table>
e.g
leave house (before) 8 00
catch 8 05 train
arrive in Middleton at 8 48
leave Middleton 14 42
arrive back 15 26
get home (after) 15 31</td><td>Completed schedule</td><td>5</td><td>M1 (indep) for establishing a start time at least 5 minutes before (B) or the end time, provided the end time is not after (B)

M1 (indep) for establishing a correct start and finish time from the first train timetable using (B) and (C) or their equivalent bracketed values if (B) and/or (C) is missing

M1 (indep) for establishing at least 4 hours in Middleton by using (C) and (D) or their equivalent bracketed values if (C) and/or (D) is missing

M1 (indep) for establishing a correct start and finish time from the second train timetable using (D) and (E) or their equivalent bracketed values if (D) and/or (E) is missing. (E) can be after 16 00.

A1 for a fully correct schedule with (F) before 16 00 and at least 5 minutes after (E) or the start time, provided the start time is not before (E)

(Note: If the candidate writes a schedule without using the table then mark their written schedule.)

(Note: Candidates can use 12hour clocktimes.)</td></tr>
</table>

PMT

5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
5	(a)		Thursday	1	B1 cao
	(b)		45	1	B1 cao
	(c)		Bar chart completed	2	B2 for bars of correct length, correctly shaded (condone Sophie's bar left unshaded) (B1 for one correct length bar with correct shading or two correct length bars with incorrect or no shading)
	(d)		Comparison	1	B1 for one correct comparison, e.g. Sophie spent more time (on the Internet) at the beginning of the week than Zach (Note: if candidates quote total amounts of time spent on the internet they must be correct or support by evidence of how they got them. Sophie: 215min or 3h35min Zach: 240min or 4h)

PMT

5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
***6**		e.g. £25 = $40, so £100 = $160 £20 = $32, so £40 = $64 £100 + £40 = $160 + £64 = $224 (London) $220 (New York)< $224(London)	New York is less expensive	4	B1 for stating a correct conversion fact from the graph $40 ≡ £25oe M1 (indep) ft for a complete method to convert £ to $ using their conversion fact e.g. 40÷25×140 oe A1 ft for $224 C1 ft (dep on M1) for more (expensive) in London oe OR B1 for stating a correct conversion fact from the graph £25 ≡ $40 oe M1 (indep) ft for a complete method to convert $ to £ using their conversion fact e.g 25÷40×220 oe A1 ft for £137.5(0) C1 ft (dep on M1) for less (expensive) in New York oe
7		(8 = 3 + 3 + 2 =) £9 + £9 + 2×£3.75 = £25.50 £40 - £25.50 = £14.50	14.50	3	M1 for 2×9 + 2×3.75 oe or 18 + 7.5(0) or 25.5(0) seen M1 for 40 – "25.50" A1 cao (SC B1 for £10 or £13 or £12.25)

PMT

5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
8	(a)		3, 7, 5, 4, 2, 3	2	M1 for at least one correct frequency or tally A1 for 3, 7, 5, 4, 2, 3 cao (B2 for correct frequencies without the use of tallies)
	(b)		2	1	B1 for 2 or ft from their frequency table
	(c)		Diagram or chart	3	M1 (ft from their frequency table) for a diagram or chart, e.g. bar chart, stick graph, pictogram, pie chart, showing correct data for at least 3 scores M1 (indep) for correct scale and label on vertical axis or fully correct labelling on horizontal axis or a suitable key A1 (ft from their frequency table) for fully correct diagram or chart (to include all axes labelled)
9			15, **17**, 12, 44 **18**, 22, **16**, **56** **33**, **39**, 28, 100	3	B3 fully correct table (B2 for 4 or 5 correct entries) (B1 for 2 or 3 correct entries)
10	(a)		$b - a$	1	B1 cao
	(b)		$\frac{(a + b)}{2}$	1	B1 for $\frac{(a+b)}{2}$ oe

5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
***11**		2×39.50 + 3×23.75 = 150.25 2×40.25 + 3×21.85 = 146.05	Seawagon	4	M1 for 2×39.50 + 3×23.75 or 150.25 or 2×40.25 + 3×21.85 or 146.05 or 2*a* + 3*b*, where *a* and *b* are consistent values from table or sight of 39.50 and 23.75 or 40.25 and 21.85 M1 for 2×39.50 + 3×23.75 and 2×40.25 + 3×21.85 A1 for (£)150.25 and (£)146.05 C1 (dep on M1) for Seawagon or ft from their answers and condone stating an incorrect difference
12	(a)		(5, 300) plotted	1	B1 for point plotted at (5, 300) allow ± ½ square tolerance
	(b)		The greater the age the less the value	1	B1 for the greater the age the less the value (price, cost etc.) Accept negative correlation but "negative" or "negative relationship" gets B0
	(c)		500 to 800 inc.	2	B2 for an answer in the range 500 to 800 (inc.) OR M1 for a single straight line segment with negative gradient that could be used as a line of best fit A1 ft from their line of best fit [SC: B1 ft reading from their single straight line with negative gradient at Age = 4 if M0 scored]

5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
13	(a)	$1 – (0.15 + 0.32 + 0.27)$ $1 – (15 + 32 + 27)$ $1 – (\frac{15}{100} + \frac{32}{100} + \frac{27}{100})$	0.26 26% $\frac{26}{100}$ (oe)	2	M1 for 1 – "(0.15 + 0.32 + 0.27)" oe or 26 seen A1 for 0.26 or $\frac{26}{100}$ (oe) or 26% (must include the % sign) [Note: 0.26 seen in the table and contradicted by an incorrect answer on the answer line gets M1A0]
	(b)	0.15×300	45	2	M1 for 0.15×300 (=45) oe A1 accept 45 out of 300

PMT

5MB1F_01

Question		Working	Answer	Mark	Notes
14	(a)		5 | 9 6 | 3 5 6 6 7 | 1 2 5 5 6 7 9 9 8 | 3 9 Key: eg, 7/2 represents 72	3	M1 for at least 2 correct 'rows' with correct stem and correct ordered or unordered leaf A1 for a fully correct ordered stem and leaf diagram B1 for a key [Ignore spacing on leaves provided the order is` correct]
	(*b)	Gill: HV 95 >, LV 75 >, Mean 80 >, Range 20 < Jamal: HV 89, LV 59, Mean 73, Range 30	Comparisons	5	M1 for '72+59+76+...'÷15 or 1095 ÷ 15 (= 73) M1 for 95 – 75 (=20**) or** '89' – '59' (= 30) or '89' and '59' seen ft from their stem and leaf diagram in (a) A1 for mean of Jamal's scores is 73 cao or for ranges of 20 and 30 cao C1 (dep on first M1) ft for a correct comparison of mean scores, e.g. Gill's mean score > Jamal's mean score oe C1 ft for a correct comparison of ranges, (dep on M1 awarded for correct method to find range) e.g. The range of Gill's scores < The range of Jamal's scores **or** a correct comparison of both end values (dep on M1 awarded for '89' and '59' seen) , e.g. Gill's lowest score > Jamal's lowest score and Gill's highest score > Jamal's highest score. oe [For the award of C2, the word 'score' must be explicitly stated. If not deduct 1 mark]

PMT

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467
Fax 01623 450481
Email publication.orders@edexcel.com

Order Code UG032651 June 2012

For more information on Edexcel qualifications, please visit
www.edexcel.com/quals

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual
Llywodraeth Cynulliad Cymru
Welsh Assembly Government
Rewarding Learning

PMT

edexcel

Mark Scheme (Results)

March 2013

GCSE Mathematics (Linear) 1MA0
Foundation (Calculator) Paper 2F

PMT

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk for our BTEC qualifications.
Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

If you have any subject specific questions about this specification that require the help of a subject specialist, you can speak directly to the subject team at Pearson.
Their contact details can be found on this link: www.edexcel.com/teachingservices.

You can also use our online Ask the Expert service at www.edexcel.com/ask. You will need an Edexcel username and password to access this service.

Pearson: helping people progress, everywhere
Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

March 2013
Publications Code UG035042
All the material in this publication is copyright
© Pearson Education Ltd 2013

NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labeling conventions.

ii) *select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

PMT

7 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
If there is no answer on the answer line then check the working for an obvious answer.
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.
Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

PMT

10 Probability

Probability answers must be given a fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

11 Linear equations

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded.

12 Parts of questions

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13 Range of answers

Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

Guidance on the use of codes within this mark scheme
M1 – method mark A1 – accuracy mark B1 – Working mark C1 – communication mark QWC – quality of written communication oe – or equivalent cao – correct answer only ft – follow through sc – special case dep – dependent (on a previous mark or conclusion) indep – independent isw – ignore subsequent working

PMT

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		7025	1	B1 cao
	(b)		Nine thousand four hundred (and) fifty	1	B1 for Nine thousand four hundred (and) fifty Accept 'nine thousand' written as '9 thousand', 'four hundred' written as '4 hundred' and 'fifty' written as '5 tens' or any mixture of these. Do not penalise poor spelling.
	(c)		29	1	B1 for 29 or twenty nine or 29.0
	(d)		7000	1	B1 for 7000 or 7 thousand or seven thousand
2	(a)		8, 10	1	B1 cao
	(b)		24	1	B1 cao
	(c)		reason	1	B1 for a valid reason that demonstrates the understanding that the number of triangles is twice the pattern number
3	(a)		240	1	B1 for 240
	(b)		arrow at 125°C	1	B1 for arrow (or line) pointing within a range of 122.5 to 127.5 (ie nearer to 125 than either 120 or 130) Use professional judgement.
	(c)		6.05 (pm)	1	B1 for 6.05 (pm) oe

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
4	(a)		Thursday	1	B1 cao
	(b)		7	1	B1 cao
	*(c)		Nick	3	M1 for the intention to add Dave's 4 times or Nick's 4 times A1 for 58 and 64 C1 (dep on M1 and two totals) for clearly stating Nick as their answer or ft from their two totals OR M1 for the intention to find the difference between the times on each of the 4 days A1 for 6 or −6 C1 (dep on M1 and a net difference) for clearly stating Nick as their answer or ft from their difference [SC: B1 for "Nick spent 6 minutes more than Dave on his phone" if M0 scored.]
5			9 squares shaded	1	B1 for any 9 squares shaded oe
6			66	2	M1 for a correct method to find the number of people on the bus if the 15 get off first. (= 57) A1 cao OR M1 for a correct method to find the number of people on the bus if the 9 get on first. (= 81) A1 cao OR M1 for a correct method to find the net change in the number of people on the bus (= 6 or −6) A1 cao

PMT

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
7		20 − 6.65 13.35 ÷ 3	4.45	3	M1 for a correct method to find the amount shared by B, R and T M1 (dep) for a correct method of dividing this amount by 3 A1 cao [SC: B1 for an answer of 17.78 (20 – 6.65 ÷ 3), if M0 scored, with or without working]
8	(a)		3, 6, 9, 3	3	B3 for a table showing all 4 correct frequencies in the correct place. (condone the absence of or any incorrect tallies) [(B2 for 2 or 3 correct tallies or 2 or 3 correct frequencies even in the wrong columns) (B1 for 1 correct tally or 1 correct frequency even in the wrong column)] [SC: B2 for 3/21 and 6/21 and 9/21 and 3/21 shown in the frequency column]
	(b)		3	1	B1 for 3 or ft table in (a)
9			Circle radius 5 cm drawn	1	B1 for a circle of radius 5 cm drawn (condone an alternative centre)

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
10	(i)		5,15 or 5,125 or 15,125 or 30,50 or 30,60 or 30,90 or 30,100 or 50,60 or 50,90 or 50,100 or 60,90 or 60,100 or 90,100	4	B1 for 2 numbers, from the list, whose sum is an even number.
	(ii)		60 or 100		B1 for 60 or 100 or both
	(iii)		5 or 15		B1 for 5 or 15 or both
	(iv)		125		B1 cao
11		9.39 × 10 24.30 × 3 + 9.39 93.90 − 82.29	£11.61	5	M1 for a correct method to find the most expensive way to buy the 10 cartridges (= 93.90) M1 for a correct method to find the least expensive way to buy the 10 cartridges (= 82.29) M1 (dep on M1 scored) for a correct method to find the difference between their least and their most expensive way, provided that both totals are for the cost of exactly 10 cartridges A1 for 11.61 B1 (indep) for correct units

PMT

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
12	(a)(i)		B and D	2	B1 cao
	(ii)		G and E		B1 for G and E (allow B and D if not in (i))
	(b)	3 + 3 + 3 + 2 + 2 +1 + 1 + 1	16	1	B1 cao
13	(a)		6am	1	B1 for 6am (accept −4) Do not accept 6 alone.
	(b)		3	1	B1 for 3 (allow − 3)
	(c)	−1−5	−6	2	M1 for −1 − 5 or intention to subtract 5 from -1 (may be shown on a diagram) A1 cao

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*14			Yes + supporting work	4	M1 for adding the weights of all the ingredients (= 96) M1 (dep) for '96' × 8 A1 cao for 768 C1 (dep on M2), ft for a correct conclusion (yes or no) from a comparison of 750 (pots) with their '768' pots; units must be quoted [SC: B1 for 768 seen without working if M0M0 scored] **OR** M1 for adding the weights of all the ingredients (= 96) M1 for 750 ÷ 8 A1 cao for 93.75 C1(dep on M2), ft for a correct conclusion (yes or no) from a comparison of their weight of ingredients in one tank full '93.75' kg with '96' kg; units must be quoted [SC: B1 for 93.75 seen without working if M0M0 scored]] **OR** M1 for adding the weights of all the ingredients (= 96) M1 (dep) for 750 ÷ '96' A1 cao for 7.8125 C1(dep on M2), ft for a correct conclusion (yes or no) from a comparison of their number of pots, '7.8125' pots with 8 (pots); units must be quoted [SC: B1 for 7.8125 seen without working if M0M0 scored]]
15			85 29 54 **168** **93** 31 47 171 13 5 **9** **27** 191 **65** **110** 366	3	B3 for fully correct table (B2 for 3 or 4 or 5 correct entries, B1 for 1 or 2 correct entries)

PMT

1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
16	(a)(i)		5	3	B1 cao
	(ii)		8		B1 cao
	(iii)		5		B1 cao
	(b)		correct sketch	2	B2 for fully correct sketch [B1 for a square (or rectangle) drawn with 2 or 3 connecting triangles on the outside of the square]
17	(a)(i)		12.978(61279…)	2	B1 for 12.978(…..)
	(ii)		13		B1 for 13 or ft from a(i) [Note: An answer of 13.0 gets B0]
	(b)		100000	1	B1 cao
18	(a)	$2 \times 8 = 16$ $16 + 7$	23	2	M1 for correct substitution of 8 into the expression $2f$ A1 cao
	(b)	$3 \times -2 + 5 \times 4$	14	2	M1 for correct substitution into the formula A1 cao

PMT

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
19	(a)		$\frac{40}{360}$	1	B1 for $\frac{40}{360}$ oe (ignore any incorrect simplification) Accept 0.11…. if no fraction shown
	(b)		4	3	M1 for a correct method to find the angle of the 'weeding' sector If measured, accept an angle between 138 and 142 inc. M1 (dep) for a correct method to find the number of degrees per hour (= 20) or the number of hours ($\frac{1}{20}$ (3 mins) per degree A1 cao for 4
20	(a)		2.5	2	M1 for 10 (cm) or "10" ÷ 4 A1 for 2.45 – 2.55
	(b)		A marked on diagram	2	M1 for a point marked (or line drawn) on a bearing of 038° from either point B or point W, OR for a point marked (or arc drawn) 6 cm from B A1 for the position of Avebury marked (accept without label if not ambiguous)

PMT

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
21	(a)		30	1	B1 for 30 minutes oe
	(b)		20	1	B1 cao
	(c)		graph completed	2	B1 for horizontal line from (5, 20) to (5.30, 20) B1 for a single straight line with the correct gradient from '(5.30, 20)' to the time axis
22	(a)		$x = 3$ drawn	1	B1 for $x = 3$ drawn [Note: each line drawn must be a single line segment satisfying $x = 3$]
	(b)		$y = x$ drawn	1	B1 for $y = x$ drawn [Note: each line drawn must be a single line segment satisfying $y = x$]
	(c)	Gradient = $\frac{3-0}{0--2}$	1.5	2	M1 for a method to find the gradient of the given line A1 for 1.5 oe
23	(a)		n^8	1	B1 for n^8 (accept n^{5+3})
	(b)		n^5	1	B1 for n^5 (accept n^{7-2})

PMT

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
24	(a)	15 ÷ 6	2.5	2	M1 for 15 ÷ 6 oe A1 for 2.5 or $2\frac{1}{2}$
	*(b)		Yes + evidence	2	M1 for a correct method to change 15 miles into kilometres C1(dep on M1) for 24 km **and** statement with correct conclusion [SC: B1 for "Yes" oe and 24 km shown if M0 scored] **OR** M1 for a correct method to change 20 kilometres into miles C1(dep on M1) for 12.5 miles **and** statement with correct conclusion [SC: B1 for "Yes" oe and 12.5 miles shown if M0 scored]

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
25			414.96	5	M1 for a correct method to work out the amount of oil required to fill the tank M1 for a correct method to find the cost of oil required before the discount M1 for a correct method of finding 5% of their calculated cost M1 (dep on previous M1) for a correct method to find the discounted cost A1 for correct answer of 414.96 or 41496p **OR** M1 for a correct method of finding 5% of the cost of 1 litre of oil M1 (dep on previous M1) for a correct method to find the discounted cost of 1 litre of oil M1 for a correct method to work out the amount of oil required to fill the tank M1 for a correct method to find the discounted cost of the oil required A1 for correct answer of 414.96 or 41496p **OR** M1 for a correct method to work out the amount of oil required to fill the tank M1 for a correct method of finding 5% of their calculated amount of oil M1 (dep on previous M1) for a correct method to find the reduced amount of oil M1 for a correct method to find the cost of the reduced amount of oil A1 for correct answer of 414.96 or 41496p

PMT

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
26	(a)	$1 - 0.2 - 0.1$ $0.7 \div 2$	0.35	3	M1 for correctly using total probability 1 or 100% if percentages used M1 (dep) for complete correct method to complete the solution A1 for 0.35 or 35% or $\frac{35}{100}$ oe
	(b)	0.1×200	20	2	M1 for 0.1×200 A1 cao [SC: B1 for an answer of $\frac{20}{200}$ if M0 scored]
27	(a)		$3x + 12$	1	B1 for $3x + 12$ or $12 + 3x$
	(b)		$x^3 + 2x$	2	M1 for the intention to multiply both terms in the bracket by x A1 for $x^3 + 2x$ OR B2 for $x^3 + 2x$ [B1 for x^3 or $2x$ seen]
	(c)		$x(x - 6)$	1	B1 for $x(x - 6)$ or $(x - 6)x$

PMT

1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
28			1180	3	M1 for a correct method to find the area of the cross section M1 (dep) for a complete correct method for the volume of the prism A1 cao OR M1 for a correct method to find the volume of one cuboid M1 (dep) for a complete correct method for the volume of the prism A1 cao

PMT

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467
Fax 01623 450481
Email publication.orders@edexcel.com
Order Code UG035042 March 2013

For more information on Edexcel qualifications, please visit our website
www.edexcel.com

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual
Llywodraeth Cynulliad Cymru
Welsh Assembly Government
Rewarding Learning

PMT

edexcel

Mark Scheme (Results)

November 2014

Pearson Edexcel GCSE
In Mathematics A (1MA0)
Foundation (Non-Calculator) Paper 1F

PMT

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

November 2014
Publications Code UG040304
All the material in this publication is copyright
© Pearson Education Ltd 2014

NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Note that in some cases a correct answer alone will not score marks unless supported by working; these situations are made clear in the mark scheme. Examiners should be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will award marks for the quality of written communication (QWC).
The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labelling conventions.

ii*) select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
If there is no answer on the answer line then check the working for an obvious answer.
Partial answers shown (usually indicated in the ms by brackets) can be awarded the method mark associated with it (implied).
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks; transcription errors may also gain some credit. Send any such responses to review for the Team Leader to consider.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.

10 Probability

Probability answers must be given a fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

Linear equations

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

12 Parts of questions

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13 Range of answers

Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

14 The detailed notes in the mark scheme, and in practice/training material for examiners, should be taken as precedents over the above notes.

Guidance on the use of codes within this mark scheme
M1 – method mark for appropriate method in the context of the question A1 – accuracy mark B1 – Working mark C1 – communication mark QWC – quality of written communication oe – or equivalent cao – correct answer only ft – follow through sc – special case dep – dependent (on a previous mark or conclusion) indep – independent isw – ignore subsequent working

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		Lhotse	1	B1 cao
	(b)		8200	1	B1 cao
	(c)		Seven thousand four hundred and twenty-eight	1	B1 for any unambiguous answer
	(d)		8051	1	B1 cao
2	(a)		4,8,3,3,2	2	M1 for at least 2 tallies or 2 frequencies correct A1 for 5 correct frequencies
	(b)		correct graph	3	M1 for bar chart or other suitable chart with at least 2 correct frequencies drawn for their scale (ft from (a)) M1 for all bars labelled and vertical axis correctly scaled A1 for accurately representing their data, with all labels, ft from (a)
3	(a)		56 000	1	B1 cao
	(b)		276	1	B1 cao
	(c)		6	1	B1 cao
	(d)		29	1	B1 cao
	(e)		13	1	B1 cao

PMT

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
4			3	3	M1 for attempt to find number of bags needed eg 254 ÷ 20 oe (= 12.7) **or**12 **or** 13 M1 (dep) for "254 ÷ 20" ÷ 5 oe (= 2.4) A1 cao **OR** M1 for 5 × 20 (=100) M1 (dep) for intention to find how many "100" in 254 (= 2.54) A1 cao
5	(a)		B or C	1	B1 for B **or** C **or** B and C
	(b)		G, E	2	B1 for G; B1 for E
	(c)		Hexagon	1	B1 cao
	(d)		Parallelogram	1	B1 cao
6	(a)		$3m$	1	B1 cao
	(b)		$7e$	1	B1 cao
	(c)		$15g$	1	B1 cao
7	(a)		31	2	M1 for 3 × 5 + 2 × 8 **or** 15 and 16 A1 cao
	(b)		$6x + 8y$	2	M1 for $6x$ **or** $8y$ A1 for $6x + 8y$ oe as final answer

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*8		Tables-R-Us 120 + (120 + 2 × 40) = 320 Fred's Furniture 120 + (32 × 6) = 312 Tables 'n Chairs 120 + (3 × 70) = 330	Fred's Furniture with working	4	M1 for correct method to find total cost of chairs (and table) for at least one shop M1 for correct method to find total cost of chairs (and table) for at least two shops A1 for 3 comparable totals (eg. chairs £200, £192, £210 **or** table and chairs £320, £312, £330) C1 (dep on M1) ft for correct statement with shop name from comparable figures
9			48	2	M1 for method to find 15% of 320 A1 cao
10	(a)		5	1	B1 cao
	(b)		evens	1	B1 cao
	(c)		$\frac{2}{6}$ oe	2	M1 for $\frac{a}{6}$ where $a < 6$ **or** $\frac{2}{b}$ where $b > 2$ A1 for $\frac{2}{6}$ oe
11	*(a)		No with working	2	M1 for 19.5 + 22.8 (= 42.3) **or** 40 − 19.5 − 22.8 (= −2.3) **or** 22 + 19 (= 41) C1 for statement with No and 42.3 **or** ±2.3 **or** 41 seen
	(b)		12 40	3	M1 for correct start eg. addition of two times **or** subtraction of one time from 1430 M1 for a complete method A1 for 12 40 (pm)

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
12			126 or 176	4	M1 for correct unit conversion of 2 m or 3 m or 20 cm M1 for method to find number in width or number in length **or** 14 or 9 or 16 or 11 M1 (dep on M1) for "number in length" × "number in width" eg 14 × 9 eg 16 × 11 A1 for 126 or 176
*13			Amsterdam with figures	3	B1 for a correct conversion from miles to km or km to miles eg 8 km = 5 miles eg 28 miles = 44 km M1 for a correct method to convert 280 miles to km or 500 km to miles **or** 420 – 460 (km) **or** 300 − 320 (miles) C1 (dep on M1) for statement with correct conclusion and correct conversions (420 – 460 km or 300 – 320 miles)
14			correct shape	2	M1 for at least 2 correctly enlarged sides A1 for correct shape **SC:** B1 for a fully correct enlargement scale factor 2 or 4
15	(a)		18	1	B1 cao
	(b)		56	1	B1 cao
	(c)		33	2	M1 for 23 and 56 identified A1 cao

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*16			No with reason	3	M1 for 17, 20 .**or** + 3 **or** $3n + 2$ M1 for method to show that 34 is not in the sequence eg continue sequence to at least 32 eg attempt to solve $3n + 2 = 34$ C1 (dep on M2) for statement with conclusion eg No with 32, 35 shown eg $n = 32 \div 3$ which is not a whole number
17			700 cm^3	3	M1 for $20 \times 5 \times 7$ A1 for 700 B1 (indep) for cm^3
18			4	3	B1 for 11.8 − 12.2 (cm) or 1180 − 1220 (km) M1 for "12" × 100 ÷ 300 oe A1 for 3.9 – 4.1 from correct figures or ft from "12" × 100 ÷ 300 oe
19			1340	4	M1 for 500 × 4 (= 2000) M1 for 960 – 300 (= 660) or "2000" + 300 (= 2300) or "2000" – 960 (= 1040) M1 (dep on M2) for a fully correct method eg "2000" – "660" or "2300" – "960" or "1040" + 300 A1 cao

PMT

PAPER: 1MA0_1F					
Question		Working	Answer	Mark	Notes
20	(a)		$\frac{5}{12}$	2	M1 for $\frac{150}{360}$ or equivalent fraction A1 cao
	(b)		42	2	M1 for 60 ÷ 12 (= 5) **or** 210 ÷ 60 (= 3.5) oe A1 cao
	(c)		not enough information	1	B1 for 'not enough information' ticked **and** appropriate explanation given
21			25	4	M1 for 600 ÷ 4 (= 150) M1 for 4500 ÷ "150" (= 30) M1 for 750 ÷ "30" A1 for 25 with supporting working **OR** M1 for 4500 ÷ 750 (= 6) M1 for 600 ÷ 4 (= 150) or 600 ÷ "6" (= 100) M1 for "150" ÷ "6" or "100" ÷ 4 A1 for 25 with supporting working **OR** M1 for 4500 ÷ 750 (= 6) or 750 ÷ 4500 (= $\frac{1}{6}$) M1 for $\frac{1}{4}\times"\frac{1}{6}"$ $\left(=\frac{1}{24}\right)$ M1 for $"\frac{1}{24}"\times 600$ A1 for 25 with supporting working

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*22			130 + correct reasons	4	M1 for angle *BFG* = 65 (may be seen on diagram) M1 (dep) for correct method to calculate *x* eg (*x* =) 65 + 65 (= 130) **or** (*x* =) 180 − (180 − 2 × 65) (= 130) C2 for *x* =130 **and** full appropriate reasons related to method shown (C1 (dep on M1) for any one appropriate reason related to method shown) eg alternate angles are equal ; base angles in an isosceles triangle are equal; angles in a triangle add up to 180°; angles on a straight line add up to 180°; exterior angle of triangle = sum of two interior opposite angles co-interior angles (allied angles) add up to 180°
23	(a)		2 reasons	2	B2 for two different reasons (B1 for 1 reason) eg No units (of distance) eg Overlapping intervals (2 and/or 3 in two boxes) eg Missing box (no box for more than 6 (km/miles) or 'other' or 4.5 (km/miles))
	(b)		Question	2	B1 for a suitable question which includes a time frame (time frame could appear with response boxes) B1 for at least 3relevant non-overlapping **and** exhaustive response boxes [Do not allow inequalities in response boxes]

PMT

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
24	(a)		$e(3e + 5)$	1	B1 for $e(3e + 5)$
	(b)		4	3	M1 for intention to expand brackets eg $7k - 21$ **or** division of all terms on RHS by 7 as a first step M1 for correct method to isolate terms in k in an equation A1 cao
	(c)		$a = 2f - 1$	2	M1 for a correct first step eg intention to multiply both sides by 2 A1 cao
25			$2 \times 2 \times 3 \times 3 \times 5$	3	M1 for continual prime factorisation (at least two consecutive steps correct) **or** at least two stages of a factor tree correct M1 for a fully correct factor tree **or** list 2, 2, 3, 3, 5 A1 for $2 \times 2 \times 3 \times 3 \times 5$ or $2^2 \times 3^2 \times 5$
26			9	4	M1 for method to find the area of one rectangle eg 15×8 (=120) or 15×11 (=165) M1 (dep) for subtraction from/by given area eg 138 − "120" (=18) or "165" – 138 (=27) M1 for final step from complete method shown eg 15 − "18"÷ 3 or for "27" ÷ 3 A1 cao **OR** M1 for a correct expression for the area of one rectangle eg $(8 + 3) \times (15 - x)$ or $8 \times x$ M1 (dep) for a correct equation eg $(8 + 3) \times (15 - x) + 8 \times x = 138$ M1 for correct method to isolate x eg $3x = 27$ A1 cao

Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5°
Measurements of length: ±5 mm

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
1		Take out Jannu	
2	(b)	Table layout modified 2 cm grid provided with 14 squares across and 12 squares up Space on left and at the bottom for labeling	
5		Shapes H and I removed	
7		*a* changed to *e* *c* changed to *f*	
10		Spinner straightened up,● at centre to represent spike	
13		2 cm grid provided	
14		1½ cm grid provided Enlargement given Question reversed – 'Describe fully the transformation that maps Shape A onto Shape B	

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
15		Horizontal lines inserted to separate rows	
17		Model provided	

PMT

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

PMT

edexcel

Mark Scheme (Results)

Summer 2015

Pearson Edexcel GCSE
In Mathematics A (1MA0)
Foundation (Non-Calculator) Paper 1F

ALWAYS LEARNING PEARSON

PMT

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2015
Publications Code UG042056
All the material in this publication is copyright
© Pearson Education Ltd 2014

PMT

NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Note that in some cases a correct answer alone will not score marks unless supported by working; these situations are made clear in the mark scheme. Examiners should be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will award marks for the quality of written communication (QWC).
The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labelling conventions.

ii) *select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

PMT

With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
If there is no answer on the answer line then check the working for an obvious answer.
Partial answers shown (usually indicated in the ms by brackets) can be awarded the method mark associated with it (implied).
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks; transcription errors may also gain some credit. Send any such responses to review for the Team Leader to consider.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.

10 Probability

Probability answers must be given a fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

Linear equations

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

12 Parts of questions

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13 Range of answers

Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

14 The detailed notes in the mark scheme, and in practice/training material for examiners, should be taken as precedents over the above notes.

Guidance on the use of codes within this mark scheme
M1 – method mark for appropriate method in the context of the question A1 – accuracy mark B1 – Working mark C1 – communication mark QWC – quality of written communication oe – or equivalent cao – correct answer only ft – follow through sc – special case dep – dependent (on a previous mark or conclusion) indep – independent isw – ignore subsequent working

PMT

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)			1	B1 for 6 TVs drawn for Sunday
	(b)		37	2	M1 for attempt to find the total for 4 days (eg 8+10+13+6) by adding individual days with at least 3 days correct A1 cao
2	(a)		50	1	B1 cao
	(b)		$\frac{3}{8}$	1	B1 cao
	(c)		2 squares shaded	1	B1 cao
	(d)		$\frac{2}{8}$ and $\frac{5}{20}$	2	B2 for both correct (B1 for one correct)
3	(a)		37.4	1	B1 cao
	(b)		6500	2	M1 for sight of 3500 or attempt to count up from 3500 on scale or count down from 10000 on scale or 10000 – "3500" ["3500" in the range 3000 – 4000] or an answer which includes the digits 65 A1 cao
4	(a)		Gulf	1	B1 cao
	(b)		Avris	1	B1 cao
	(c)		19 200	1	B1 cao

PMT

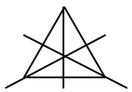
PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
5	(a)		Parallel lines marked	1	B1 for parallel lines marked
	(b)		Right angle	1	B1 for right angle marked
	(c)		35	1	B1 for 33 - 37
6	(a)		11	1	B1 cao
	(b)		+ 8 or × 3	1	B1 for + 8 or × 3
7	(a)		08 12	1	B1 cao
	(b)		6	2	M1 for evidence of counting on 15 minutes from 09 20, could be shown with table A1 cao
	(c)		17 35	1	B1 cao
8	(a)(i)		likely	2	B1 cao
	(ii)		Mark at 0		B1 cao
	(b)		Mark at $\frac{1}{2}$	1	B1 cao
	(c)	(1, H), (2, H), (3, H), (4, H), (5, H); (6, H), (1, T), (2, T), (3, T), (4, T), (5, T), (6, T)	combinations shown	2	M1 for at least 4 correct outcomes A1 for all 12 correct outcomes with no incorrect outcomes and no repeats

PMT

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
9	(a)		4.40	3	M1 for a method to find the cost for one delivery method eg 19 + 7 × 0.7(0) (= 23.9(0)) or 16 + 7 × 0.5(0) (= 19.5(0)) M1 for a method to find the cost for **both** delivery methods **and** attempting to subtract eg 23.90 – 19.50 A1 cao Accept 4.4 **OR** M1 for method to find the difference between the two delivery costs eg 19−16 (=3) and 70-50 (=20) M1 for a method to find the "cost" using the differences eg "3" + 7 × "20" A1 cao Accept 4.4
	(b)		23	3	M1 for 25 – 16 (= 9) M1 for a method to divide "9" by 0.50 (= 18) A1 cao **OR** M1 for starting with 16 and a method to add on 0.50s M1 for starting with 16 and adding on 0.50s to within 0.50 of 25 A1 cao
10	(a)		5.8 to 6	1	B1 for an answer in the range 5.8 to 6
	*(b)		No (supported)	3	M1 for a correct conversion of any amount (lb to kg or kg to lb) excepting that in (a) M1 (dep M1) for a complete method to convert 100 kg (from 25×4) to lb (to compare with 200 lb) or to convert 50 lb (from 200÷4) to kg (to compare with 25 kg) C1 for "no" and a comparison with a converted weight of 212 - 228 pounds or 88 - 94 kg

<table>
<tr><th colspan="6">PAPER: 1MA0_1F</th></tr>
<tr><th colspan="2">Question</th><th>Working</th><th>Answer</th><th>Mark</th><th>Notes</th></tr>
<tr><td>11</td><td>(a)</td><td></td><td>2, 1</td><td>1</td><td>B1 cao</td></tr>
<tr><td></td><td>(b)</td><td></td><td>–2, 3</td><td>1</td><td>B1 cao</td></tr>
<tr><td></td><td>(c)</td><td></td><td>Point marked</td><td>1</td><td>B1 for point marked at (–3, –1)</td></tr>
<tr><td></td><td>(d)</td><td></td><td>Line $x = 3$ drawn</td><td>1</td><td>B1 for line $x = 3$ drawn</td></tr>
<tr><td>12</td><td></td><td></td><td>13
−1
13
26</td><td>4</td><td>B1 cao
B1 cao
B1 cao
B1 cao
SC: If B0 scored award M1 for appropriate working shown</td></tr>
<tr><td>13</td><td>(a)</td><td></td><td>9</td><td>1</td><td>B1 cao</td></tr>
<tr><td></td><td>(b)</td><td></td><td>50</td><td>1</td><td>B1 cao</td></tr>
<tr><td>*14</td><td></td><td>
<table>
<tr><td colspan="2">g</td><td colspan="2">kg</td></tr>
<tr><td>2000</td><td>600</td><td>2</td><td>0.6</td></tr>
<tr><td colspan="2">mm</td><td colspan="2">cm</td></tr>
<tr><td>400</td><td>450</td><td>40</td><td>45</td></tr>
<tr><td>210</td><td>350</td><td>21</td><td>35</td></tr>
<tr><td>75</td><td>80</td><td>7.5</td><td>8</td></tr>
</table>
</td><td>Yes with correct conversions</td><td>4</td><td>M1 for using 1 kg = 1000 g eg sight of 2000 or 0.6
M1 for using 1 cm = 10 mm eg sight of 400, 210, 25, 45, 35 or 8
M1 for evidence of considering three boxes eg 2.5×3 (=7.5) or reducing the 2kg parcel to compare with one box
C1 for “yes” with correct conversions of dimensions and weight
NB: Candidates can work in cm or in mm and in kg or g</td></tr>
<tr><td>15</td><td>(a)</td><td></td><td>1</td><td>1</td><td>B1 cao</td></tr>
<tr><td></td><td>(b)</td><td></td><td>54</td><td>2</td><td>M1 fx (at least 3 seen from 0×2, 1×12, 2×8, 3×6, 4×2) or for an answer of 56
A1 cao</td></tr>
</table>

PMT

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
16	(a)			2	M1 for any 1 correct line of symmetry, allow extras A1 for all 3 lines and no extras
	(b)		Triangle drawn	2	M1 for intersecting arcs of radii 6cm or an accurate triangle with no arcs A1 for a fully correct triangle with arcs
	(c)		48	2	M1 for 24 ÷ 3 (=8) A1 cao
	(d)		Tessellation	2	B2 for correct tessellation (at least 5 more shapes) (B1 for at least 4 shapes, including initial shape, correctly tessellating)
17	(a)		–7	2	M1 for 2 × 4 + 3 × –5 or 8 – 15 oe A1 cao
	(b)		36	1	B1 cao
*18			x =115° with complete reasons	3	M1 for angle CEB = 180 – 25 – 90 (= 65) or angle ABE = 90 – 25 (= 65) or for x = 25 + 90 A1 for 115 C1 (dep on M1) for full reasons, appropriate to their given method e.g. angles in a triangle add up to 180° **and** angles on a straight line add up to 180° e.g. the exterior angle of a triangle is equal to the sum of the interior opposite angles e.g. angles in a quadrilateral add up to 360° e.g. alternate angles are equal

PMT

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
19	(a)		16	2	M1 for 360 ÷ 45 oe or 2 × 8 or Roach identified as 6 or Bream identified as 8 A1 cao
	(b)		No	1	B1 for 'No' and correct explanation, e.g. the pie charts only show that the proportions OR explains that she could be correct if the total number of fish is the same in each chart OR explains that we don't know if she is correct because the total number of fish is not known.
20			18	3	M1 for $\frac{1}{10} \times 60$ (= 6) or $\frac{1}{10} + \frac{3}{5}$ or "$\frac{7}{10}$" oe M1 for $\frac{3}{5} \times 60$ (= 36) or 1 – "$\frac{7}{10}$" (=$\frac{3}{10}$) or "$\frac{7}{10}$"× 60 (= 42) A1 cao
21			12	3	M1 for a method to find volume of a cuboid, eg. 2 × 10 × 15 (= 300) or 5 × 5 × x (= 25x) M1 (dep) for "300" ÷ "25" oe A1 cao OR M1 for 10 ÷5 (= 2) and 15 ÷ 5 (= 3) or 10 ÷5 (= 2) and 2 ÷ 5 (= 0.4) M1 (dep) for 2 × "2" × "3" or 15 × "2" × "0.4" A1 cao

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
22			Question	2	B1 for a question with a time frame for frequency of use B1 for at least 3 correctly labelled response boxes (non-overlapping and exhaustive) [Do not allow inequalities in response boxes]
23	(a)		$2(4x + 3)$	1	B1 cao
	(b)		$y(y - 2)$	1	B1 cao
	(c)		p^5	2	M1 for $\frac{p^{3+4}}{p^2}\left(=\frac{p^7}{p^2}\right)$ or $p^{3-2} \times p^4$ $(= p^1 \times p^4)$ or $p^3 \times p^{4-2}$ $(= p^3 \times p^2)$ A1 cao

PMT

PAPER: 1MA0_1F

Question		Working	Answer	Mark	Notes
*24		1195 4780 5975 2 3 9 0 4 | 0 6 | 1 8 | 2 5 1 0 | 1 5 | 4 5 | 5 9 7 5 | | 200 | 30 | 9 | | 20 | 4000 | 600 | 180 | | 5 | 1000 | 150 | 45 | 4000 + 1000 + 600 + 150 + 180 + 45 = 5975	Kirsty's Plants with correct calculations	5	M1 for complete method with relative place value correct. Condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all the appropriate elements of the calculation or digits 5975 M1 for a complete method to find 120% of £52.50 A1 for 59.75 and 63(.00) C1 (dep on M2) for correct conclusion for their figures OR M1 for the start of a method to divide £52.50 by 25, eg. 2 rem 2 M1 for a complete method to divide £52.50 by 25, condone one arithmetic error, or digits 21 M1 for a complete method to find 120% of "£2.10" A1 for 2.52 C1 (dep on M2) for correct conclusion for their figures OR M1 for a complete method to find 120% of £52.50 M1 for the start of a method to divide "63" by 25, eg. 2 rem 13 M1 for a complete method to divide "63" by 25, condone one arithmetic error, or digits 252 A1 for 2.52 C1 (dep on M2) for correct conclusion for their figures
25	(a)		Relationship	1	B1 for a description of a dynamic relationship eg "The older the car the lower the price" or "The newer the car the greater the price" oe (accept negative correlation)
	(b)		6400 to 7000	2	B2 for an answer in the range 6400 to 7000 OR M1 for a single straight line segment with negative gradient that could be used as a line of best fit or vert. line from 3.5 or a point plotted at (3.5, *y*), *y* in the range 6400 to 7000 A1 for 6400 to 7000

PMT

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
26		40, 80, 120 15, 30, 45, 60, 75, 90, 105, 120 40 = 2 × 2 × 2 × 5 15 = 3 × 5	3 and 8 or any multiple of 3, 8	3	M1 for multiples of both 40 and 15 (at least 2 of each shown but condone errors if intention is clear) or 40 × 15 M1 (dep on M1) for a complete method to find a common multiple of 40 and 15, eg sight of 120, 240, 600, condoning one arithmetic error in any lists of multiples shown A1 for 3, 8 or any multiple of 3, 8 **OR** M1 for factors 2,2,2,5 and factors 3,5 M1 (dep on M1) for a complete method to find a common multiple of 40 and 15 A1 for 3, 8 or any multiple of 3, 8
*27			Has enough (with evidence)	5	M1 for splitting the shape (or showing recognition of the "absent" triangles) and using a method to find the area of one shape M1 for a complete method to find the total area, (= 9 m^2) M1 (dep M1) for a method to find the number of packs required from their total area, eg. "9" ÷ 2 = 4.5 rounded up to 5 M1 for a method to find 75% of 24.80 or 75% of the cost of their total number of packs, eg. 24.80 × 5 × $\frac{75}{100}$ (= 93) or 24.80 × $\frac{75}{100}$ (= 18.6) C1 for a conclusion supported by fully correct answers, eg. showing 9 (m^2), 5 (packs) and 93 or 7 (from 100 – 93) **OR** M1 for method to find 75% of £24.80, eg. 24.80 × $\frac{75}{100}$ (= 18.6) M1 for method to find total number of packs Mary can buy, eg. 100 ÷ "18.60" = 5.3.... truncated to 5 or 10 (m^2) M1 for finding area of one relevant shape or showing how one pack (2 m^2) can fit in the diagram M1 (dep on previous M1) for complete method to show that 5 packs can cover the floor C1 for a conclusion supported by fully correct answers, showing the capacity (10) greater than total area (9)

PMT

Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5º
Measurements of length: ±5 mm

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
Q1	(a)	Diagram enlarged. The key has been moved above the diagram. Braille only: rectangle has been divided into 4 in the diagram.	B1 for 6 TVs drawn for Sunday
Q1	(b)	Diagram enlarged. The key has been moved above the diagram. Braille only: rectangle has been divided into 4 in the diagram.	M1 for attempt to find the total for 4 days (eg 8+10+13+6) by adding individual days with at least 3 days correct A1 cao
Q2	(a)	All diagrams enlarged. Shading changed to dotty shading.	B1 cao
Q2	(b)	All diagrams enlarged. Shading changed to dotty shading.	B1 cao
Q2	(c)	All diagrams enlarged. Shading changed to dotty shading.	B1 cao
Q2	(d)	All diagrams enlarged. Shading changed to dotty shading. ‘some’ replaced by ‘five’.	B2 for both correct (B1 for one correct)

PMT

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
Q3	(a)	All diagrams enlarged.	B1 cao
Q3	(b)	All diagrams enlarged.	M1 for sight of 3500 or attempt to count up from 3500 on scale or count down from 10000 on scale or 10000 – "3500" ["3500" in the range 3000 – 4000] or an answer which includes the digits 65 A1 cao
Q4	(a)	Final column removed from the table.	B1 cao
Q4	(b)	Final column removed from the table.	B1 cao
Q4	(c)	Final column removed from the table.	B1 cao
Q5	(a)	Diagram enlarged. Angle arc put inside the angle size.	B1 for parallel lines marked
Q5	(b)	Diagram enlarged. Angle arc put inside the angle size.	B1 for right angle marked
Q5	(c)	Diagram enlarged. Angle arc put inside the angle size.	B1 for 33 - 37
Q6	(a)	Diagrams enlarged.	B1 cao
Q6	(b)	Diagrams enlarged. Braille only: (i) placed in the space.	B1 for + 8 or × 3
Q8	(a)(i)	Candidates asked to write the word instead of circling. Diagrams enlarged.	B1 cao

PMT

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
Q10	(a)	13 pounds changed to 35 pounds. Diagram enlarged. Label for horizontal axis left aligned. Label for vertical axis placed above the axis. Right axis is labelled.	B1 for an answer of 16
Q10	*(b)	Diagram enlarged. Label for horizontal axis left aligned. Label for vertical axis placed above the axis. Right axis is labelled.	M1 for a correct conversion of any amount (lb to kg or kg to lb) excepting that in (a) M1 (dep M1) for a complete method to convert 100 kg (from 25×4) to lb (to compare with 200 lb) or to convert 50 lb (from 200÷4) to kg (to compare with 25 kg) C1 for "no" and a comparison with a converted weight of 212 - 228 pounds or 88 - 94 kg
Q11	(a)	Grid enlarged. Crosses changed to filled in circles.	B1 cao
Q11	(b)	Grid enlarged. Crosses changed to filled in circles.	B1 cao
Q11	(d)	Grid enlarged. Crosses changed to filled in circles.	B1 for line $x = 3$ drawn
Q11	(c)	Grid enlarged. Crosses changed to filled in circles. 'with a cross (x)' removed.	B1 for point marked at (–3, –1)

PMT

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
Q12		Wording added: 'There are four spaces to fill.'	B1 cao B1 cao B1 cao B1 cao SC: If B0 scored award M1 for appropriate working shown
Q13	(a)	MLP only: x changed to y.	B1 cao
Q14		2 models provided for all candidates. MLP also have diagrams for Diagrams A and B. For third diagram, all have a diagram showing the side view and the end view . Wording is adjusted.	M1 for using 1 kg = 1000 g eg sight of 2000 or 0.6 M1 for using 1 cm = 10 mm eg sight of 400, 210, 25, 45, 35 or 8 M1 for evidence of considering three boxes eg 2.5×3 (=7.5) or reducing the 2kg parcel to compare with one box C1 for "yes" with correct conversions of dimensions and weight NB: Candidates can work in cm or in mm and in kg or g
Q15	(a)	MLP only: Frequency column is widened to allow for working.	B1 cao
Q15	(b)	MLP only: Frequency column is widened to allow for working.	M1 *fx* (at least 3 seen from 0×2, 1×12, 2×8, 3×6, 4×2) or for an answer of 56 A1 cao

PMT

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
Q16	(a)	Diagram is enlarged.	M1 for any 1 correct line of symmetry, allow extras A1 for all 3 lines and no extras
Q16	(b)	Diagram is enlarged. 6 cm changed to 8 cm. Base line given on the diagram.	M1 for intersecting arcs of radii 8cm or an accurate triangle with no arcs A1 for a fully correct triangle with arcs
Q16	(c)	Diagram is enlarged. Diagrams enlarged.	M1 for 24 ÷ 3 (=8) A1 cao
Q16	(d)	Diagram is enlarged. Grid enlarged. Dots are 3 cm apart. Cut out shape provided for all. Braille candidates have extra shapes.	B2 for correct tessellation (at least 5 more shapes) (B1 for at least 4 shapes, including initial shape, correctly tessellating)
Q17	(a)	MLP only: a changed to e, b changed to f.	M1 for $2 \times 4 + 3 \times -5$ or $8 - 15$ oe A1 cao
Q18		Diagram enlarged. Angle arc put inside the angle size. Wording added: 'Angle DEB is marked x.'	M1 for angle *CEB* = 180 – 25 – 90 (= 65) or angle *ABE* = 90 – 25 (= 65) or for $x = 25 + 90$ A1 for 115 C1 (dep on M1) for full reasons, appropriate to their given method e.g. angles in a triangle add up to 180° **and** angles on a straight line add up to 180° e.g. the exterior angle of a triangle is equal to the sum of the interior opposite angles e.g. angles in a quadrilateral add up to 360° e.g. alternate angles are equal

PMT

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
Q19	(a)	Diagrams enlarged.	M1 for 360 ÷ 45 oe or 2 × 8 or Roach identified as 6 or Bream identified as 8 A1 cao
Q19	(b)	Diagrams enlarged.	B1 for 'No' and correct explanation, e.g. the pie charts only show that the proportions OR explains that she could be correct if the total number of fish is the same in each chart OR explains that we don't know if she is correct because the total number of fish is not known.
Q21		2 models provided for all candidates. MLP also have diagrams. In text, wording is added to give the dimensions of the first cheese.	M1 for a method to find volume of a cuboid, eg. 2 × 10 × 15 (= 300) or 5 × 5 × x (= 25x) M1 (dep) for "300" ÷ "25" oe A1 cao OR M1 for 10 ÷5 (= 2) and 15 ÷ 5 (= 3) or 10 ÷5 (= 2) and 2 ÷ 5 (= 0.4) M1 (dep) for 2 × "2" × "3" or 15 × "2" × "0.4" A1 cao
Q23	(a)	MLP only: x changed to y.	B1 cao

PMT

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
Q25	(a)	Diagram enlarged. Crosses changed to filled in circles. Label for horizontal axis left aligned. Label for vertical axis placed above the axis. Right axis is labelled.	B1 for a description of a dynamic relationship eg "The older the car the lower the price" or "The newer the car the greater the price" oe (accept negative correlation)
Q25	(b)	Diagram enlarged. Crosses changed to filled in circles. Label for horizontal axis left aligned. Label for vertical axis placed above the axis. Right axis is labelled.	B2 for an answer in the range 6400 to 7000 OR M1 for a single straight line segment with negative gradient that could be used as a line of best fit or vert. line from 3.5 or a point plotted at (3.5, *y*), *y* in the range 6400 to 7000 A1 for 6400 to 7000
Q27		Diagram enlarged. Measurement lines for 1 metre and 2.2 metres are removed. Dashed measurement line for 3.4 metres.	M1 for splitting the shape (or showing recognition of the "absent" triangles) and using a method to find the area of one shape M1 for a complete method to find the total area, (= 9 m^2) M1 (dep M1) for a method to find the number of packs required from their total area, eg. "9" ÷ 2 = 4.5 rounded up to 5 M1 for a method to find 75% of 24.80 or 75% of the cost of their total number of packs, eg. $24.80 \times 5 \times \frac{75}{100}$ (= 93) or $24.80 \times \frac{75}{100}$ (= 18.6) C1 for a conclusion supported by fully correct answers, eg. showing 9 (m^2), 5 (packs) and 93 or 7 (from 100 – 93) **OR** M1 for method to find 75% of £24.80, eg. $24.80 \times \frac{75}{100}$ (= 18.6) M1 for method to find total number of packs Mary can buy, eg. 100 ÷ "18.60" = 5.3.... truncated to 5 or 10 (m^2) M1 for finding area of one relevant shape or showing how one pack (2 m^2) can fit in the diagram M1 (dep on previous M1) for complete method to show that 5 packs can cover the floor C1 for a conclusion supported by fully correct answers, showing the capacity (10) greater than total area (9)

PMT

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom

PMT

Mark Scheme (Results)

Summer 2015

Pearson Edexcel GCSE
In Mathematics A (1MA0)
Foundation (Calculator) Paper 2F

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2015
Publications Code UG042057
All the material in this publication is copyright
© Pearson Education Ltd 2014

PMT

NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Note that in some cases a correct answer alone will not score marks unless supported by working; these situations are made clear in the mark scheme. Examiners should be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will award marks for the quality of written communication (QWC).
The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labelling conventions.

ii) *select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
If there is no answer on the answer line then check the working for an obvious answer.
Partial answers shown (usually indicated in the ms by brackets) can be awarded the method mark associated with it (implied).
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks; transcription errors may also gain some credit. Send any such responses to review for the Team Leader to consider.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.

10 Probability

Probability answers must be given as fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

Linear equations

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

12 Parts of questions

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13 Range of answers

Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

14 The detailed notes in the mark scheme, and in practice/training material for examiners, should be taken as precedents over the above notes.

Guidance on the use of codes within this mark scheme
M1 – method mark for appropriate method in the context of the question A1 – accuracy mark B1 – Working mark C1 – communication mark QWC – quality of written communication oe – or equivalent cao – correct answer only ft – follow through sc – special case dep – dependent (on a previous mark or conclusion) indep – independent isw – ignore subsequent working

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		17.1	1	B1 cao
	(b)		1.3	1	B1 cao
	(c)		10.24	1	B1 cao
2	(a)		Hexagon	1	B1 cao
	(b)		8	1	B1 cao
3		$4 \times 17 + 3$	71	2	M1 for a complete method seen or 68 given as the answer A1 cao
*4			D C F S R 7 5 3 1 4 Suitable chart or diagram	3	M1 bar chart or other suitable chart with sections for at least 2 pets M1 sections for each pet and vertical axis correctly scaled / 2 correct frequencies C1 fully correct chart or diagram, including correct frequencies and all labels
5	(a)		$5e$	1	B1 cao
	(b)		$7gh$	1	B1 cao
	(c)		$a + 6d$	2	M1 for a or $6d$ A1 cao

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
6			9	3	M1 for two correct operations seen or implied M1 for a complete method A1 cao OR M1 for 13 + 5 (= 18) and 4 + 7 (= 11) M1 for a complete method A1
7	(a)(i)		95	2	B1 cao
	(ii)		Reason		B1 angles in a triangle add to 180°
	(b)		Drawing	3	B3 for a fully correct triangle (B2 for a triangle with 2 of the 3 aspects: line of 8cm; angle of 40º; angle of 45º) (B1 for 1 of the 3 aspects)
8	(a)		15 minutes	2	B1 15 B1 (indep) minutes
	(b)		3 05	2	M1 for intention to add 10 minutes and 55 minutes to 2 o'clock A1 3 05 oe
	*(c)		No with reason	2	M1 for a method to add 75 minutes to '3 05' or to work out the difference between '3 05' and 4 pm or to subtract 75 minutes from 4 pm C1(dep M1) for conclusion based on appropriate working and correct time calculations, ft from (b)

PMT

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
9	(a)		12.5	1	B1 cao
	(b)		500	2	M1 for a complete method to find $\frac{5}{6}$ of 600 or 600 ÷ 6 (= 100) A1 cao
10	(a)		$\frac{68}{105}$	1	B1 oe
	(b)		22	2	M1 for 105 – 15 – 68 oe A1 cao
	(c)		14.3	2	M1 15 ÷ 105 × 100 oe A1 for answer in range14.2 – 14.3
11	(a)		300	1	B1 cao
	(b)		100	3	M1 for intention to find the total number of adults or the total number of children M1(dep) for subtracting the two totals A1 for answer in range 90 to 110 OR M1 for intention to find the difference between the number of adults and the number of children for two months M1 (dep) for correctly processing all the differences A1 for answer in range 90 to 110

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*12			£52.74 or 5274p	4	M1 for subtracting to find the units used (= 293) M1 for '293' × 18 or '293' × 0.18 A1 for 52.74 or 5274 C1 (dep M2) for identifying their answer with the correct monetary units OR M1 for 2968 × 18 (= 53424) or 2675 × 18 (= 48150) or 2968 × 0.18 (= 534.24) or 2675 × 0.18 (= 481.50) M1 for subtracting their two costs (consistent in pence or pounds) A1 for 52.74 or 5274 C1 (dep M2) for identifying their answer with the correct monetary units
13	(a)(i)		19	2	B1 cao
	(ii)		Reason		B1 explanation, e.g. add 4 each time
	(b)		43	1	B1 cao
	(c)		Yes with reason	1	B1 reason eg 1 less than 80 and 80 is a multiple of 4, or generate series to 79, or 79 is the 20th term, oe

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
14	(a)		12	1	B1 cao
	(b)		6	2	M1 for 18 –12 or 12 –18 or 12 to 18 A1 cao
	(c)		15	2	M1 for listing the numbers in order or identifying the middle two numbers as 15 or an answer of 14 A1 cao
	(d)	174÷12	14.5	2	M1 for adding the numbers and dividing by 12 A1 cao
*15			65 km is not enough	4	M1 for intention to add the four distances M1 for adding with consistent and correct use of units A1 65(km) oe [can work in other units eg metres] C1 (dep on M2) correct conclusion comparing their figure to 70 with supporting working eg 18.2+14.25+20.5+12.05 = 65km or 18+14+20+12 = 64; 0.2+0.25+0.5+0.05 = 1; 64+1 = 65km
16			Suitable data collection sheet	3	B3 for a table with all 3 aspects: column/row heading ‘colour’ or list of at least three colours column/row heading ‘tally’ or tally marks column/row heading ‘frequency’ or totals oe (B2 for a table with 2 of the 3 aspects) (B1 for a table with 1 of the 3 aspects) NB: Do not accept questionnaires or graphs

PMT

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
17			$T = 6d + 15f$	3	M1 for $6d$ or $15f$ or T = a linear expression in d and/or f M1 for $6d + 15f$ oe or $T = 6d$ (+ kf) oe or $T = 15f$ (+ kd) A1 $T = 6d + 15f$ oe
18	(a)	2,5	2 or 5	1	B1 cao
	(b)	1, 4, 9, 16 1 + 4 + 16	1, 4, 16	2	M1 for identifying at least 2 different square numbers from the list A1 cao
19	(a)		–0.5	2	M1 for intention to subtract 19 from both sides or divide all terms by 8 as a first step A1 for –0.5 oe
	(b)		3	2	M1 for a correct operation to collect the c terms or the number terms on one side of the equation e.g. $2c – c + 5 = 8$, $2c + 5 – 5 = c + 8 – 5$ A1 cao
20			4	3	M1 for method to find 6% of 2000 (= 120) M1 (dep) for 480 ÷ '120' or for repeated addition of '120' to 480 A1 cao
21			45	4	M1 for finding the price of 1 kg or 0.5 kg of oranges M1 for using their value to find the price of 4.5 kg of oranges M1 (dep M2) for a complete method to find the price of 1 kg of apples A1 oe

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
22	(a)		$\frac{1}{30}$	1	B1 oe
	(b)		$\frac{3}{10}$	2	M1 for method to sum number of white chocolates, eg 4 + 4 + 1 (= 9) A1 $\frac{3}{10}$ or $\frac{9}{30}$ oe
	(c)		0.48	2	M1 for 1 – (0.35 + 0.17) oe A1 0.48 oe
*23		1155 ÷ 15 = 77 $x + 2x + x – 7 = 77$ $4x – 7 = 77$ $4x = 84$ $x = 21$ OR $15x + (15 \times 2x) + 15(x – 7)$ $=1155$ $60x – 105 = 1155$ $60x = 1260$ $x = 21$	Redlands 21 St Samuels 42 Francis Long 14	5	M1 for $2x$ or $x–7$ M1 for 1155 ÷ 15 (= 77) M1 (dep M2) for equation summing their three expressions to '77' A1 for 21,42 and 14 C1 for fully correct answer with correct labels OR M1 an expression for the cost of the pupils from Redlands M1 for expression for the cost of the pupils from either St Samuels or Francis Long M1 (dep M2) for equation summing their three expressions to 1155 A1 for 21,42 and 14 C1 for fully correct answer with correct labels
24			Loci drawn	3	B1 line parallel to *BC* and 3 cm from *BC* B1 arc drawn centre *C* with radius 4 cm B1 ft for shading a region below their horizontal line **and** inside their arc

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*25			No supported by working	4	M1 for π × 7 (= 21.9 to 22) or π × 7 × 2.54 (= 55.5 to 56) M1 (dep) for a complete method that could lead to two figures that are comparable e.g. π × 7 × 2.54; π × 7 and 50 ÷ 2.54 A1 for correct comparable figures e.g. 55.5 to 56 (cm); 21.9 to 22 (in) and 19.6 to 19.7 (in) C1 (dep M2) for a correct conclusion based on their comparable figures OR M1 for 50 ÷ π (= 15.9 to 15.92) or 50 ÷ 2.54π (= 6.26 to 6.27) M1 (dep) for a complete method that could lead to two figures that are comparable e.g. (50 ÷ π) ÷ 2.54; 50 ÷ π and 7 × 2.54 A1 for correct comparable figures e.g. 6.26 to 6.27 (in); 15.9 to 15.92 (cm) and 17.7 to 17.8 (cm) C1 (dep M2) for a correct conclusion based on their comparable figures
26			172.1	4	M1 for $30^2 + 20^2$ or 900 + 400 or 1300 M1 for $\sqrt{30^2 + 20^2}$ or $\sqrt{1300}$ (= 36(.0555)) M1 for a complete method to find the length of wire required e.g. 2×'36.1' + 2×30 + 2×20 A1 172 – 172.2

Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5°
Measurements of length: ±5 mm

PAPER: 1MA0_2F			
Question		**Modification**	**Notes**
2	(a)	Diagram is enlarged.	
4		Diagram is enlarged.	
5	(c)	MLP only: *a* changed to *p*, *d* changed to *q*.	M1 for *p* or 6*q* A1 cao
7	(a)	Diagram enlarged. Angle arc put inside the angle size.	
	(b)	Diagram enlarged. Angle arc put inside the angle size. Braille only: base line given on diagram sheet. Part (c) added: 'Draw a line 8 cm long.'	

PMT

PAPER: 1MA0_2F			
Question		**Modification**	**Notes**
11		Diagram enlarged. Label for vertical axis placed above the axis. Right axis is labelled. 'Number of children': shading changed to dotty shading. Key moved to the top left.	
19	(b)	MLP only: *c* changed to *p*.	M1 for a correct operation to collect the *c* terms or the number terms on one side of the equation e.g. $2p - p + 5 = 8$, $2p + 5 - 5 = p + 8 - 5$ A1 cao
24		Rectangle has been widened so that *AD* and *BC* are 12 cm. In text, 8 metres has been changed to 10 metres.	B1 line parallel to *BC* and 3 cm from *BC* B1 arc drawn centre *C* with radius 5 cm B1 ft for shading a region below their horizontal line **and** inside their arc
25		Diagram is enlarged.	
26		Diagram is enlarged. 20 cm moved to the left. 30 cm moved to the top.	

PMT

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom

PMT

edexcel

Mark Scheme (Results)

November 2016

Pearson Edexcel GCSE
In Mathematics Linear (1MA0)
Foundation (Non-Calculator) Paper 1F

PMT

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

November 2016
Publications Code 1MA0_1F_MS
All the material in this publication is copyright
© Pearson Education Ltd 2016

NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labelling conventions.

ii) *select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

7 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
If there is no answer on the answer line then check the working for an obvious answer.
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.
Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

10 Probability

Probability answers must be given a fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

11 Linear equations
Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded.

12 Parts of questions
Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13 Range of answers
Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

Guidance on the use of codes within this mark scheme
M1 – method mark A1 – accuracy mark B1 – Working mark C1 – communication mark QWC – quality of written communication oe – or equivalent cao – correct answer only ft – follow through sc – special case dep – dependent (on a previous mark or conclusion) indep – independent isw – ignore subsequent working

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)			1	B1 for 4 people unambiguously drawn for Cricket
	(b)		27	2	M1 ft from their pictogram for 4 + 6 + 9 + 8 or 2 × (2 + 3 + 4.5 + 4) A1 cao
2	(a)		6.5	1	B1 for 6.5 ± 0.2, accept 6½
	(b)		obtuse	1	B1 cao
	(c)		135	1	B1 for 135 ± 2
3	(a)		millilitres	1	B1 for millilitres or m*l* or cm^3
	(b)		kilometres	1	B1 for kilometres or km
	(c)		tonnes	1	B1 for tonnes or tonne
4	(a)	ruler, pen ruler, pencil, eraser ruler, 3 erasers **or**	3	2	M1 for at least one correct way listed in words or as costs **or** for answer of 3 A1 for 3 **and** the three correct ways listed in words or as costs
	(b)	7 × 30 + 3 × 45 = 3.45 5.00 – 3.45 =	1.55	3	M1 for 7 × 30 (= 210) or 3 × 45 (= 135) M1 (dep on previous M1) for £5 – their **total** of 7 × 30 and 3 × 45 **or** digits 155 seen A1 for 1.55 cao **B1 SC** for 4.25
	(c)		20*y*	1	B1 for 20*y* oe

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
5	(a)			1	B1 cao
	(b)		20	1	B1 cao
	(c)	(i)	15	2	B1 cao
	(c)	(ii)	Response		B1 for "divide 45 by 3" or "divide 30 by 2" or "a third of the squares are grey" oe
6	(a)		8	1	B1 for 8 or – 8
	(b)		14 30	1	B1 for 14 30 or 2 30 pm
	(c)		18 00	2	M1 for intent to add 9 h to 1400 **and** subtract 5 h in any acceptable order A1 for 18 00 or 6 pm
7			(2, –1) or (4, 5) or (–8, –1)	3	M1 for **plotting** one point correctly M1 for plotting all three points correctly A1 **SC B1 ft** their points for coordinates of point giving parallelogram if M0 scored
8	(a)		300	2	M1 for using 1000 g = 1 kg or 1.7 or 0.3 seen (maybe on scale) A1 cao
	(b)		21	3	M1 for sight of 18 or 3 (maybe on scale) M1 for complete process of ("18" – 15) × 7 A1 cao

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
9	(a)		13347	1	B1cao
	(b)		73314	2	B2 cao (B1 for 74331 **or** any number made from the given 5 digits ending with 4)
	(c)		$\frac{1}{5}$	1	B1 for $\frac{1}{5}$ oe
	(d)		$\frac{4}{5}$	1	B1 ft for $\frac{4}{5}$ oe
*10			1.2 m or 120 cm	4	B1 for evidence of using 1 m = 100 cm M1 for subtracting the four post widths from the total length eg $4 - 4 \times 10$ (= 360) or "400" $- 4 \times 10$ or $3x + 40 = 400$ (oe) M1 for dividing their total space found by 3 or subtracting 40 from both sides of $3x + 40 = 400$ C1 for correct conclusion for 1.2 m or 120 cm with supported working
11	(a)		$3h$	1	B1
	(b)		$3pr$	1	B1
	(c)		$2x + 7y$	2	M1 for $2x$ or $7y$ A1 for $2x + 7y$
	(d)		22	2	M1 for correct substitution e.g. $2 \times 5 + 4 \times 3$ A1 cao

PAPER: 1MA0/1F				
Question	**Working**	**Answer**	**Mark**	**Notes**
12 (a)		Correct explanation	2	M1 for working out area of triangle (=6) and area of rectangle (=24) **or** for dividing rectangle into eighths or other comparable areas A1 for explaining that that 24 ÷ 6 is 4 **or** $\frac{2}{8} = \frac{1}{4}$ **or** that ½ × ½ = ¼ from symmetry of shape
(b)		75	1	B1 cao
13 (a)		9.4	1	B1 cao
*(b)		Diagram or chart	4	B1 for a key, or suitable labels, to identify regular yoghurt and low fat yoghurt. B1 for diagram(s) or chart(s) set up for comparison, showing data for protein, carbohydrate and fat, e.g. dual bar chart, line graph, etc B1 for correct heights for regular yoghurt **or** low fat yoghurt, dependent on a linear scale C1 for a fully correct diagram or chart to include labels for protein, carbohydrate and fat and vertical axis correctly scaled and labelled
14	0.25, $\frac{3}{10}$, 0.32, 35%, $\frac{2}{5}$	Correct order	2	M1 for conversion to decimals with one error **or** conversion to percentages with one error **or** conversion to fractions with a common denominator with one error **or** correct order with one error **or** correct in reverse order A1 for correct order in any format
15		Data collection table	3	Table with columns: B1 for column with 'method of travel' oe or at least 3 examples B1 for column with 'tally' or tally marks B1 for column with 'frequency' or 'number of people' **NB** Do not accept questionnaires or attempts at graphs.

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
16			25	3	M1 for (opposite angle =) 50 May be marked on the diagram M1 for complete method eg 90 – (180 – "50") ÷ 2 or 50 ÷ 2 A1 cao **or** M1 for 180 – 50 (= 130) May be marked on the diagram M1 for complete method eg (180 – "130") ÷ 2 A1 cao
17	(a)		30 minutes or ½ hour	1	B1 for 30 minutes or ½ hour
	(b)		4	1	B1 cao
	(c)		5 30 pm	1	B1 for 5 30(pm) or 17 30
18	(a)		Diagram	2	B2 for a correct enlargement scale factor 3 (B1 for at least 2 lines correctly enlarged or any enlargement using an incorrect scale factor, sf ≠ 1)
	(b)		Diagram	2	B2 for correct tessellation (at least 5 more shapes) (B1 for at least 4 shapes, including initial shape, correctly tessellating ignoring extra shapes)

PAPER: 1MA0/1F				
Question	**Working**	**Answer**	**Mark**	**Notes**
19 (a)		$\frac{1}{6}$	1	B1 cao
(b)		4	2	M1 for 20 ÷ 5 (=4) Allow build up method to 4 lots of 1:5 A1 cao
(c)		6	2	M1 for a full method to find the number of red counters needed eg 20 ÷ 2 – "4" A1 ft from (b)
20	(A, 1), (A, 2), (A, 3) (B, 1), (B, 2), (B, 3) (C, 1), (C, 2), (C, 3)	$\frac{1}{9}$	3	M1 for any 3 combinations with no incorrect combinations or for 3 × 3 A1 for all 9 combinations with no duplicates or extras **or** for 9 B1 (dep on M1) for $\frac{1}{\text{'9'}}$ **Alternative scheme** B1 for $\frac{1}{3}$ seen M1 for $\frac{1}{3} \times \frac{1}{3}$ A1 for $\frac{1}{9}$ oe
21		17.6(0)	4	M1 18 × 6.45 (= 116.1(0) or 18 × 645 = (11610) M1 for 18 × 6.45 – 98.50 in the correct order but units may not be consistent A1 for digits 1760 A1 ft (dep on M2) for correct placement of decimal point after subtraction (of appropriate values)

PAPER: 1MA0/1F				
Question	**Working**	**Answer**	**Mark**	**Notes**
22 (a)		$50 < a \leq 60$	1	B1 for correctly identifying the modal class interval e.g. 50 – 60 oe
(b)		Polygon	2	B2 for fully correct frequency polygon - points plotted at the midpoint (B1 for all points plotted accurately but not joined with straight line segments **or** all points plotted accurately and joined with last joined to first to make a polygon **or** all points at the correct heights and consistently within or at the ends of the intervals **and** joined (can include joining last to first to make a polygon) **NB**: ignore parts of graph drawn to the left of the 1st point or the right of the last point; ignore any histograms drawn.
23	$(7 + 3 + 3) \times (4 + 3 + 3) - 7 \times 4 = 102$ **or** $2 \times 7 \times 3 + 2 \times 4 \times 3 + 4 \times 3 \times 3 = 102$	11	4	M1 for a correct method to find the area of one appropriate rectangle M1 for a complete method to find the area of the path M1 (dep on M1) for "102" ÷ 10 A1 cao
*24		Bathroom Mart and correct figures	4	M1 for $\frac{1}{3} \times 1500$ (= 500) or $\frac{2}{3} \times 1500$ (= 1000) M2 for a correct method to reduce 1500 by 60% **and then** by a further 15% eg 1500 × "0.4" × 0.85 (= 510) oe (M1 for method to find 60% or 40% of 1500 e.g. $\frac{60}{100} \times 1500$ (= 900) C1 for 510 and 500 with a correct conclusion.

PAPER: 1MA0/1F				
Question	**Working**	**Answer**	**Mark**	**Notes**
*25		95° with reasons	4	M1 for angle *DBC* = 180 – 125 (= 55) **or** angle *EAC* = 180 – 125 (=55) (May be on diagram) A1 for *x* = 95 C2 (dep on M1) with full reasons for their given method, e.g. angles on a straight line add up to 180° **and** angles in a triangle add up to 180° **and** corresponding angles are equal **or** allied angles / co-interior angles add up to 180° **and** angles in a triangle add up to 180° (C1 (dep on M1) for one appropriate reason linked to parallel lines) M1 for angle CDB = 125 – 30 (= 95)) (May be on diagram) A1 for *x* = 95 C2 (dep on M1) for full reasons, for their given method, e.g. exterior angles are equal to the sum of the interior opposite angles **and** corresponding angles are equal (C1 (dep on M1) for one of these appropriate reasons linked to parallel lines)
26 (a)		Diagram	2	B2 for fully correct solution with all three aspects with no ambiguity Aspect 1: circle at 3 Aspect 2: circle not shaded Aspect 3: arrow pointing left indicating extension beyond −4 or line extending beyond −4 (B1 for any two aspects)
(b)		$x \geqslant 5$	2	M1 for intention to add 7 to both sides (of inequality or equation) or to divide all 3 terms by 4 as a first step, or (*x* =) 5 A1 for $x \geqslant 5$ oe

Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5°
Measurements of length: ±5 mm

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
1		Diagram enlarged. Stick men changed to circles. Key moved above and to the left of the diagram.	Standard mark scheme
2	(a)	Line AB has been increased 8.5cm to allow for use of specialist equipment.	B1 for 8.5 ± 0.5, accept 8½
	(b)	Diagram enlarged.	B1 for obtuse
	(c)	Diagram enlarged.	B1 for 135 ± 5
4		Price list has been put into a table.	Standard mark scheme

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
5		3 patterns are placed vertically. Pattern number 3 is repeated below and labelled 'Pattern number 4 (not completed)' Wording altered: Pattern number 4 has been started below pattern number 3. Complete pattern number 4 on the diagram. 'Grey' wording changed to 'shaded' throughout. Shading changed to dotty shading.	Standard mark scheme
6		Table has been turned to vertical format.	Standard mark scheme
7		Grid has been enlarged.	Standard mark scheme
8	(a) (b)	Scale is drawn as a horizontal line labelled from 0 to 4 kg. Additional text added: It shows a scale. Scale is drawn as a horizontal line with measurements along it from 0 to 40kg.	Standard mark scheme
10		Diagram enlarged. '10cm' put inside the posts.	Standard mark scheme
11	(a) (c)	Braille only: h changed to q. MLP only: x changed to e and y changed to f.	Standard mark scheme

PMT

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
12		Diagram enlarged. Shading changed to dotty shading.	Standard mark scheme
13		Table has been turned to a vertical layout. Grid changed to 14 squares by 12 squares. Grid has been enlarged. Table values have been changed. Regular 4.5, 4.5, 3.5. Low fat 6.0, 5.5, 0.5.	Standard mark scheme using revised values
16		Diagram enlarged.	Standard mark scheme
17		Diagram enlarged. Axes labels have been moved to the top of the vertical axis and to the left of the horizontal axis. Right axis has been labelled.	Standard mark scheme

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
18	(a)	Two shapes are given on the grid, labelled Shape P and Shape Q. Question text has been changed to: 'Shape P has been mapped onto Shape Q. Describe fully the transformation that maps Shape P onto Shape Q.'	B1 for enlargement B1 scale factor 3
	(b)	Number of shapes to draw has been reduced to 5. A cut out shape is provided for all candidates. 1 column has been removed from the right hand side.	Standard mark scheme
20		Boxes have been removed around letters and numbers.	Standard mark scheme
22	(a)	The letter 'a' has been changed to't' for all candidates. Frequency numbers have been changed to 5, 15, 15, 20, 5.	Standard mark scheme using changed values
	(b)	Grid has been enlarged. Axes labels have been moved to the top of the vertical axis and to the left of the horizontal axis. Right axis has been labelled.	Standard mark scheme
23		Diagram has been enlarged. Shading changed to dotty shading.	Standard mark scheme
25		Diagram has been enlarged. Wording added 'Angle CEA is marked x.'	Standard mark scheme

PMT

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
26		Diagram has been enlarged. Wording added 'It shows a number line.'	Standard mark scheme

PMT

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London WC2R 0RL

PMT



Mark Scheme (Results)

November 2016

Pearson Edexcel GCSE
In Mathematics B (2MB01)
Foundation (Non-Calculator) Unit 2

PMT

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

November 2016
Publications Code 5MB2F_01_1611_MS
All the material in this publication is copyright
© Pearson Education Ltd 2016

PMT

NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Note that in some cases a correct answer alone will not score marks unless supported by working; these situations are made clear in the mark scheme. Examiners should be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will award marks for the quality of written communication (QWC).
The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labelling conventions.

ii) *select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

7 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
If there is no answer on the answer line then check the working for an obvious answer.
Partial answers shown (usually indicated in the ms by brackets) can be awarded the method mark associated with it (implied).
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks; transcription errors may also gain some credit. Send any such responses to review for the Team Leader to consider.
If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.

10 Probability

Probability answers must be given a fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

11 Linear equations
Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

12 Parts of questions
Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13 Range of answers
Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

Guidance on the use of codes within this mark scheme
M1 – method mark A1 – accuracy mark B1 – Working mark C1 – communication mark QWC – quality of written communication oe – or equivalent cao – correct answer only ft – follow through sc – special case dep – dependent (on a previous mark or conclusion) indep – independent isw – ignore subsequent working

5MB2F November 2016						
Question		**Working**	**Answer**	**Mark**	**Notes**	**Type**
1	(a)		9 squares shaded	1	B1 cao	C
	(b)		$\frac{75}{100}$	1	B1 for $\frac{75}{100}$ oe eg $\frac{3}{4}$	C
	(c)		4	1	B1 cao	C
	(d)		$\frac{3}{8}$	1	B1 cao	C
2	(a)		19	1	B1 cao	C
	(b)		31	1	B1 cao	C
	(c)		Reason given	1	B1 for correct reason eg: 80 is even Terms of the sequence are odd Terms end 1, 3, 5, 7, 9 Shows 79 and 83 or 79 or 83 with term to term difference of 4 given	E
3	(a)		6	1	B1 cao	C
	(b)		−9	1	B1 cao	C
4	(a)		6.90	3	M1 for 13.60 + 13.60 (=27.20) M1 for "27.20" – 20.30 or 6.9 A1 for 6.90	E
	(b)		26	1	B1 cao	C
	(c)		5.23 pm	1	B1	C
5			2.9 kg or 2900g	2	M1 for 3.4 – 0.5 or 3400 – 500 or 2.9 or 2900 A1 for 2.9 kg or 2900 g (units must be correct)	G

5MB2F November 2016						
Question		**Working**	**Answer**	**Mark**	**Notes**	**Type**
6	(a)		sector	1	B1	C
	(b)(i)		prism	3	B1 for prism	C
	(b)(ii)		5		B1 cao	C
	(b)(iii)		6		B1 cao	C
7	(a)		965	1	B1 cao	C
	(b)		596	1	B1 cao	C
*8			23 Norwich 27 Ipswich	3	M1 for 30 – 12 and 20+7 **or** 20 – 5 and 30+7 **or** 30 – 12 and 20 + 12 **or** 20 – 5 and 30 + 5 **or** 30 – 12 and 20 – 5 **or** 30 + 5 and 20 + 12 **or** 30 – 12 + 5 **or** 20 – 5 + 12 **or** 12 – 5 (= 7) M1 for 30 – 12 + 5 **and** 20 – 5 + 12 C1 for Norwich 23 and Ipswich 27	E
9	(a)(i)		(2, −4)	2	B1 cao	C
	(a)(ii)		Point plotted		B1 for point plotted at (−2,3)	C
	(b)		$y = x$ drawn	1	B1 for correct line	G
10	(a)		E	1	B1 cao	C
	(b)		1	1	B1 cao	C
	(c)		B, E	1	B1 cao	C
11		8 +8 + 8 = 24 24 ÷ 4 = 6 6 × 6 = 36	36 cm^2	5	M1 for 8 +8 + 8 (= 24) M1 for finding square side length (“24” ÷ 4) M1 for squaring side length (“24” ÷ 4) × (“24” ÷ 4) A1 for 36 cao B1 for cm^2	E

5MB2F November 2016						
Question		**Working**	**Answer**	**Mark**	**Notes**	**Type**
*12		180 – (68 + 68) = 44 44 + 44 = 88	88°	4	M1 for 180 – (68 + 68) (= 44) M1 dep for completing method to find angle y 44 + 44 or 180 – (180 – 44 – 44) A1 for $y = 88$ C1 for fully correct appropriate reasons for complete method used. Base angles of isosceles triangle are equal Angles in a triangle add up to 180° Exterior angle of a triangle equals sum of the interior opposite angles **or** Angles on a straight line add up to 180° NOTE – If angles or working is incorrectly assigned either in working or on diagram, award M0	E
13	(a)		9	1	B1 cao	C
	(b)		12	1	B1 cao	C

5MB2F November 2016						
Question		**Working**	**Answer**	**Mark**	**Notes**	**Type**
14		6, 10, 14, 18 8, 13, 18	18	3	M1 for listing at least 3 multiples of 4 and at least 3 multiples of 5 M1 for adding 2 to multiples of 4 **and** adding 3 to multiples of 5 A1 for 18 cao	E
*15		120 ÷ 8 × 5 80 + 75 = 155 155 > 150 OR 150 – 80 = 70 70 ÷ 5 × 8 112 < 120	No with reason	3	M1 for method to convert 120 km to miles 120 ÷ 8 × 5 (=75) M1 for 80 + '75' (=155) C1 for No with correct total distances in miles OR M1 for 150 – 80 = 70 M1 for complete method to convert 70 miles to km 70 ÷ 5 × 8 (=112) C1 for No with correct values for distance driven in France and mileage remaining.	E
16	(a)	$7a + 4a – 8b$	$11a – 8b$	2	M1 for $4a – 8b$ A1 for $11a – 8b$	G
	(b)		n^{11}	1	B1 cao	C
	(c)		$5(x + 2)$	1	B1 cao	C

5MB2F November 2016					
Question	**Working**	**Answer**	**Mark**	**Notes**	**Type**
17		74	4	M1 for $200 - \frac{10}{100} \times 200$ (=180) M1 for "180" ÷ (1 + 2 + 7) (= 18) M1 for "18" × (1 + 2) + 20 A1 cao OR M1 for $200 - \frac{10}{100} \times 200$ (=180) M1 for $\frac{70}{100} \times 180$ (=126) M1 for 180 – '126' + 20 A1 cao	E
18	$4 \times 3 = 12$ $2 \times 10 = 20$ $(12 + 20 + 20) \times 1.5$ $8 \times 10 \times 1.5 = 120$ $\frac{1}{2} \times 4 \times 7 \times 1.5 = 21$ $120 - 21 - 21$	78	4	M1 for method to find area of parallelogram or 2 triangles M1 for method to find whole cross sectional area M1 for complete method to find volume A1 cao OR M1 for method to find volume of enclosing cuboid or volume of a single cuboid. M1 for method to find volume of triangular prism(s) of method to find parallelogram prism M1 for complete method to find volume of prism. A1 cao	E



Mark Scheme (Results)

Summer 2017

Pearson Edexcel GCSE (9 – 1)
In Mathematics (1MA1)
Foundation (Calculator) Paper 2F



Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2017
Publications Code 1MA1_2F_1706_MS
All the material in this publication is copyright
© Pearson Education Ltd 2017

General marking guidance

These notes offer general guidance, but the specific notes for examiners appertaining to individual questions take precedence.

1 All candidates must receive the same treatment. Examiners must mark the last candidate in exactly the same way as they mark the first.

Where some judgement is required, mark schemes will provide the principles by which marks will be awarded; exemplification/indicative content will not be exhaustive. When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the response should be sent to review.

2 All the marks on the mark scheme are designed to be awarded; mark schemes should be applied positively. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme. If there is a wrong answer (or no answer) indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

Questions where working is not required: In general, the correct answer should be given full marks.
Questions that specifically require working: In general, candidates who do not show working on this type of question will get no marks – full details will be given in the mark scheme for each individual question.

3 **Crossed out work**
This should be marked **unless** the candidate has replaced it with an alternative response.

4 **Choice of method**
If there is a choice of methods shown, mark the method that leads to the answer given on the answer line.

If no answer appears on the answer line, mark both methods **then award the lower number of marks.**

5 **Incorrect method**
If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.

6 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working as you can check the answer, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

7 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question or its context. (e.g.. an incorrectly cancelled fraction when the unsimplified fraction would gain full marks).

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect (e.g.. incorrect algebraic simplification).

8 Probability

Probability answers must be given as a fraction, percentage or decimal. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

9 Linear equations

Unless indicated otherwise in the mark scheme, full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously identified in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

10 Range of answers

Unless otherwise stated, when an answer is given as a range (e.g. 3.5 – 4.2) then this is inclusive of the end points (e.g. 3.5, 4.2) and all numbers within the range.

Guidance on the use of abbreviations within this mark scheme	
M	method mark awarded for a correct method or partial method
P	process mark awarded for a correct process as part of a problem solving question
A	accuracy mark (awarded after a correct method or process; if no method or process is seen then full marks for the question are implied but see individual mark schemes for more details)
C	communication mark
B	unconditional accuracy mark (no method needed)
oe	or equivalent
cao	correct answer only
ft	follow through (when appropriate as per mark scheme)
sc	special case
dep	dependent (on a previous mark)
indep	independent
awrt	answer which rounds to
isw	ignore subsequent working

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
1 (a)		$3p$	B1	cao
(b)		$2m^3$	B1	cao
(c)		$10 - 4c + 6d$	M1	for $-4c$ or $6d$ (accept $+-4c$)
			A1	for $10 - 4c + 6d$
2		60	B1	cao
3 (a)		Walk	B1	cao
(b)		7 on chart	B1	for bar of height 7 drawn for girls walking
(c)		4	B1	cao
(d)		96	M1	for method to find number of Year 6 students in the survey e.g. $5 + 9 + 6 + 4 + 9 + 7 + 4 + 1 + 2 + 1$ (= 48) or $14 + 10 + 16 + 5 + 3$ (= 48)
			A1	for 96 or ft from (b), eg 82 if no bar in (b)
4		$\frac{11}{30}, \frac{2}{5}, \frac{7}{15}, \frac{1}{2}$	M1	converts fractions to a common form, e.g. fractions with a denominator of 30, decimals or percentages, at least two conversions correct or any 3 fractions in correct order
			A1	correct order

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
5 (a)		Monday wrong	C1	for seeing difference in tally marks and frequency for Monday
(b)		Comment	C1	for suitable comment, eg extra picture for Tuesday needed or explains that 0.5 of a CD is not possible
6		268.20	P1	for a process to work out the value of the £1 coins, eg. 495 ÷ 3 (= 165) or 495 × 0.33...or of the 50p coins, eg. 124 ÷ 2 (= 62)
			P1	for process to find the number of 20p coins, eg. (495 – 124 – (“165”) (= 206)
			P1	for complete process to find total value using consistent units., eg. (“165”) + (124 ÷ 2) + (“206” × 0.2) or 165 + 62 + 41.2
			A1	cao (accept 268.2)
7		0.985	B1	oe
8 (a)		25	B1	for 25 (accept 5^2)
(b)		24	B1	cao
(c)		23, 29	B1	for 23 and 29 and no extras
9		54	M1	for method to form equation, eg $90 + 2x + 3x = 360$ or for $360 – 90$ (= 270)
			M1	for $5x = 360 – 90$ or for $2x + 3x = 360 – 90$ or for $2x = 108$ or for $3x = 162$ or for $270 \div 5$
			A1	cao

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
10		Letters2send (supported)	P1	for the start of a process to find comparable costs at either shop, e.g. 150 ÷ 25 (= 6) or 150 ÷ 30 (= 5), 150 ÷ 10 (= 15), 2.10 ÷ 15 = (=0.14)
			P1	for process to find cost from Letters2send, e.g. (150 ÷ 25) × 3.49 (= 20.94)
			P1	for process to find cost at Stationery World, e.g. (150 ÷ 30) × 2 × 2.10 (= 21)
			C1	for correct conclusion with correct values from each shop (20.94 and 21)
				OR
			P1	for the start of a process to find comparable costs, eg 3.49 ÷ 25 (= 0.1396), 2.10 ÷ 10 (= 0.21), 25 ÷ 3.49 = (7.1...), 2.10 ÷ 15 = (= 0.14)
			P1	for process to take into account the offer at Stationery World, eg buy 30 envelopes pay for 20,
			P1	for complete process to find values that can be used for comparison, eg 30 × 0.13(96) and 2 × 2.10 (= 4.2(0))
			C1	for correct conclusion with correct values from each shop (4.1(88) and 4.2(0))

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
11 (a)		29	B1	answer in the range 29 to 30
(b)		186 to 195	M1	for changing 6ft 3 inches to inches e.g. $6 \times 12 + 3$ (= 75) or changing 1ft to 30 cm
			M1	for a method to convert to cm, e.g. 25 →63 then × 3, $6 \times 30 + \frac{1}{4} \times 30$
			A1	for answer in the range 186 to 195 or ft from correct use of graph
12		0.0733(03...)	M1 A1	for correct numerator (3.4496.....) or correct denominator (47.0596) or 0.073 for 0.0733(03.....)
13 (a)		Rotation	B2	for a fully correct rotation at (–4,–1), (–3,–1), (–4,–4), (–1,–2)
			[B1	for the quadrilateral in correct orientation and size or rotated 90° anticlockwise about the origin]
(b)		Reflection in the *y*-axis	B1	for reflection
			B1	for *y*-axis (or *x* =0)
				[A combination of transformations scores 0 marks]

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
14 (a)		$5(1 - 2m)$	B1	cao
(b)		$2ab(a + 3b)$	M1	for $2a(ab + 3b^2)$ or $2b(a^2 + 3ab)$ or $ab(2a + 6b)$ or $2ab$(2 term expression with terms in a or b or ab, can include constants), eg $2ab(1a + 3ab)$, $2ab(1 + 3b)$
			A1	for $2ab(a + 3b)$
15 (a)		0.47	B1	
(b)		2.28×10^9	M1	for correct value but not in standard form, eg $22.8 \times 10^{3+5}$, 228×10^7, 2 280 000 000 or for 2.28×10^n , $n \neq 9$
			A1	cao
16		T shown on the map	C1	for showing a perpendicular bisector or point T equidistant from points B and C.
			C1	for a circle or arc of circle of radius 2.5 cm or point T 2.5 cm from point A
			C1	for T shown in correct position

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
17		98	P1	for process to find P(1), e.g. 1 – 0.17 – 0.18 – 0.09 – 0.15 – 0.1 (= 0.31) or for a process to find P(1 or 3), e.g. 1 – 0.17 – 0.09 – 0.15 – 0.1 (= 0.49)
			P1	for process to find the number of 3s, e.g. 0.18 × 200 (=36) or process to find the number of 1s, e.g. P(1) × 200 (= 62), or process to find the number of (1 or 3)s, eg [P(1) + 0.18] × 200 or process to find any expected frequency, using any probability × 200, eg 0.17 × 200
			A1	cao
				OR
		98	P1	for process to find P(2 or 4 or 5 or 6), eg 0.17 + 0.09 + 0.15 + 0.1 (= 0.51)
			P1	for process to find the number of (2 or 4 or 5 or 6)'s, eg "0.51" × 200 (= 102)
			A1	cao

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
18		Yes (supported)	P1	for process to work out the total number of children, e.g. 117 × 4 (= 468)
			P1	(dep P1) for process to work out total number of adults or the total number of people, e.g. "468" × 5 ÷ 2 (= 1170) or "468" × 7 ÷ 2 (= 1638)
			A1	for 1170 or 1638
			P1	for process to work out the percentage of theatre full, e.g. $\frac{"468"+"1170"}{2600} \times 100$ (= 63) or for a process to work out 60% of 2600 (= 1560)
			C1	for a correct conclusion supported by correct figures e.g. 63% or 1560 **and** 1638
				OR
			P1	for a process to work out 60% of 2600, eg. $\frac{60}{100} \times 2600$ (= 1560)
			P1	(dep P1) for process to work out total number of children, e.g. "1560" × 2 ÷ 7 (= 445(.7...)
			A1	for 445(.7...)
			P1	for process to work out number of children in the circle, eg. "445(.7...)" ÷ 4 (= 111 to 112)
			C1	for a correct conclusion supported by correct figures e.g. 111 to 112
				[Where appropriate, accept rounded or truncated values]

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
18 cont.				OR
			P1	for a process to find the maximum number of children, eg. 2600 × 2 ÷ 7 (= 742(.8…))
			P1	for process to work out the total number of children, e.g. 117 × 4 (= 468)
			A1	for 468 and 742(.8...)
			P1	for $\frac{"468"}{"742(.8..)"} \times 100$ (= 63) or process to work out 60% of "742.8.." (= 445(7..))
			C1	for a correct conclusion supported by correct figures e.g. 63% or 468 and 445(.7...)
				[Where appropriate, accept rounded or truncated values]
19		Side elevation	C2	for the side elevation (4 cm by 2 cm rectangle with a solid line drawn 1 cm from the 2 cm edge, and correct orientation)
			[C1	for the side elevation as a rectangle]
		Front elevation	C2	for the front elevation as a trapezium in correct orientation with base 4 cm, parallel sides 1 cm and 4 cm
			[C1	for the front elevation as a trapezium with two right angles]
				[Ignore incorrect or no labelling]

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
20 (a)		57.1	P1	for a process to find time from Liverpool to Manchester, eg. 56 ÷ 70 (= 0.8 (hrs) or 48 (mins))
			P1	for a process to find the total distance, eg 56 + 61 (= 117) or the total time, eg"48" + 75 (= 123) or "0.8" + $\frac{75}{60}$ (= 2.05), with consistent units of time
			P1	(dep P2) for a correct process to find average speed with consistent units of time, eg."117" ÷ "2.05" or ."117" ÷ "123"
			A1	for answer in the range 57 to 57.1
(b)		explanation	C1	for explaining that the time taken for the two parts of the journey must be the same or the distance from Leeds to York is $\frac{3}{4}$ the distance from Barnsley to York oe
21 (a)		3.9	M1	for a ratio of $\frac{8.1}{5.4}$ (= 1.5) oe or $\frac{5.4}{8.1}$ (= 0.66..) oe or $\frac{2.6}{5.4}$ (= 0.48..) oe or $\frac{5.4}{2.6}$ (= 2.07..) oe
			A1	cao
(b)		2.05	M1	for $\frac{5.4}{8.1} \times 6.15$ (= 4.1) or $\frac{2.7}{8.1} \times 6.15$ oe or ft "scale factor" from (a)
			A1	cao

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
22		Secure Bank (supported)	P1 P1 C1	for a process to work out the interest after one year e.g. 0.02×25000 (= 500) or 0.043×25000 (= 1075) or for 1.02 or 25500 or 1.043 or 26075 for process to find value of the investment after 3 years or the multiplicative factor for 3 years at one of the banks, e.g. $25000 \times 1.02 \times 1.02 \times 1.02$ oe (= 26530...) or 1.02^3 (= 1.0612...) or $25000 \times 1.043 \times 1.009 \times 1.009$ oe (= 26546...) or $1.043 \times 1.009 \times 1.009$ (= 1.0618.....) [accept total interest of 1530...or 1546...if final values of investment are not found] for Secure Bank from correct figures eg 26530.. and 26546..or 1530.. and 1546.. or 1.0612.. and 1.0618
23		$4.755 \leq n < 4.765$	B2 [B1	for $4.755 \leq n < 4.765$ for 4.755 or 4.765 or 4.764$\dot{9}$]
24		$x = -8$, $x = 3$	M1 M1 A1	for factorisation or for substitution into quadratic formula $(x \pm a)(x \pm b)$ where product of a and b = 24, eg $(x \pm 4)(x \pm 6)$ or difference of a and b = 5, eg $(x \pm 2)(x \pm 7)$ $\frac{-5 \pm \sqrt{5^2 - 4 \times 1 \times -24}}{2}$ oe (condone one sign error) for $(x + 8)(x - 3)$ or for $\frac{-5 \pm \sqrt{121}}{2}$ oe cao

Paper 1MA1: 2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
25 (a)		$5n - 2$	B2	for $5n - 2$ oe
			[B1	for $5n + k$, k may be 0]
(b)		No (supported)	C1	for No with evidence, e.g. $3 \times 4^2 = 48$, $\sqrt{48}$ is not an integer, he has multiplied by 3 first but should have squared first

Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5°
Measurements of length: ±5 mm

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
1	(c)	MLP and braille: *c* and *d* changed to *s* and *t*.	Standard mark scheme but change *c* & *d* to *s* & *t*
3		Grid enlarged. Key moved above the diagram. Right axis has been labelled. Boys shading has been changed to dotty. The vertical axis label has been moved above the vertical axis	Standard mark scheme
5	(b)	Pictogram enlarged. Key moved above the diagram.	Standard mark scheme
8		Wording 'nine' added	Standard mark scheme
9		Diagram enlarged. Angle sizes moved outside the angle arcs; the arcs have been made smaller.	Standard mark scheme
11		Grid enlarged. Right axis labelled. Axes labels have been moved to the left of the horizontal axis and above the vertical axis. In (a) Number '74' changed to '90'.	(a) becomes 35 to 37. In (b) suggest 180 to 200
13	(a)	Question reversed. Rotation drawn on the diagram and labelled as 'shape B'. Grid enlarged and *y* axis reduced so it finishes at 2. Shapes labelled 'shape A' and 'shape B'. Wording changed 'It shows shape A and shape B given on a grid. Describe fully the single transformation that maps shape A onto shape B.'	Award B1 for "rotation" Award B1 for "90° clockwise about centre O [or (0,0)] NB: award B0 for any indication of a mention of other transformations
13	(b)	Grid enlarged and y axis reduced so it starts at -2. Wording 'B' and 'C' deleted and shapes labelled as 'shape P' and 'shape Q'. Triangles P and Q moved above the *x* axis. Wording added 'It shows shape P and shape Q given on a grid.'	Standard mark scheme

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
14	(b)	MLP only: *a* changed to *x* and *b* changed to *y*.	Standard mark scheme but change *a* & *b* to *x* & *y*
16		Number '250 metres' changed to '500 metres'. Points *B* and *C* moved to the right to allow for use of specialist equipment. Points *B* and *C* joined with a line. Scale moved above the diagram.	Standard mark scheme, but given the alternations to the given diagram, the relative positions of any constructions and the position(s) of *T* will change.
17		Table turned to vertical format.	Standard mark scheme
19		Alternative question. Model has been provided for all candidates. Diagram enlarged and also provided for MLP. The measurements on the prism have been doubled. Wording added next to the diagram of the trapezium 'Diagram NOT accurately drawn'. Four shapes have been provided below the trapezium labelled A to D. Wording added above the four shapes 'scale: 2 cm to 1 metre'. Question wording has changed and has been split into two parts: 'Look at the model or at the diagrams for Question 19 in the Diagram Book. They show a prism with a cross section in the shape of a trapezium. All measurements are in metres. Below the prism there are four shapes A, B, C and D. (i) Which shape shows the front elevation of the prism? (ii) Which shape shows the side elevation of the prism?'	Mark scheme amended as follows: (i) B2 for C (ii) B2 for A (B1 for B or D)
21		Diagram enlarged. Measurements '2.6 cm' and '5.4 cm' added to the diagram.	Standard mark scheme

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom

Question 4

The correct answer was by far the modal response although some students did try to round or truncate 1.756 This was acceptable provided the correct answer had been seen in the working. A number of students carried out division by 100 giving 17.56

Question 3

This was not answered well. 150, 15 or 1.5 were the most common incorrect responses, with about 2/3 giving the correct answer.

Question 21

This was well answered with many getting the final answer of 28, though some lost the final mark by rounding in the wrong direction, or not giving their answer as an integer. The most common errors were 850×200 or $850 \div 18.53$

Question 12

Part (a) of this question was well answered and many students showed clear working together with a clear conclusion based on supportive figures. Most students stated that Rehan did not have enough money and gave their reason as either “he would need $215” or that “he only has $65 left”.

Part (b) was less well answered but differentiated well between the most able students sitting the paper. Many students failed to “use a suitable approximation” so could not be awarded any marks for their response to this part of the question. Only a relatively small proportion of the students who did use an approximation guaranteed the statement that “Rehan is wrong” by using a value below £0.749, for example 0.74 or 0.7.

Question 10

Students who divided 8.40 by 0.024 had an efficient process to find the length of time spent in the car park in minutes and gained the first mark. This was the most common first step. Some students started by multiplying 0.024 by 60 to find that the cost per hour was 1.44 euros. Dividing 8.40 by 1.44 completed the process to find the length of time in hours and the first mark could be awarded. Some students used 1.44 in a build up method and attempted to reach 8.40 but few completed the method correctly. The next stage of the problem involved adding the length of time to 10 45. This was done by adding on 350 minutes in steps or by first converting it to 5 hours 50 minutes. However, this stage proved to be the downfall of many students. It was common to see 350 minutes converted to 3 hours 50 minutes or to see 5.83 (from 350 ÷ 60 or 8.40 ÷ 1.44) interpreted as 5 hours 83 minutes or 6 hours 23 minutes or 5 hours 8 minutes. Some of the students who added the length of time to 10 45 correctly gave the answer as 4 35 rather than as 4 35 pm or 16 35 and lost the accuracy mark. Students should be encouraged to use the time button on their calculator to deal with this type of question.

Question 11

In part (a) some students did not read the graph with sufficient care when changing 3 stones to kilograms. Answers such as 10.9 or 20 were quite common.

The most common approach seen to change 80 kilograms to stones in part (b) was reading from the graph at a factor of 80, which was often 40, and scaling up to 80. A few students used two values that sum to 80. The scale on the horizontal axis was often not read correctly and statements such as 40 kg = 6.1 stones or 10 kg = 1.3 stones were common. An answer outside the range 12.4 to 12.8 was awarded full marks if it came from a complete method that included a correct reading from the graph. Some students, for example, read from the graph to find 1 stone = 6 kg and then divided 80 by 6 to complete the method. Too many students gave an answer with little or no working out. When the answer was not in the range 12.4 to 12.8 marks could only be awarded if a complete method was shown. Students should be encouraged to show a clear method on the graph as, without this, incorrect conversions can be given no marks. Attempts at answering the question by extending the graph were usually unsuccessful.

Question 15

This question was not answered particularly well. Many students were not able to use the scale correctly. The length of the plane was often multiplied by 24 instead of being divided by 24 and it was common for students to add 1 and 24 and then multiply or divide the length of the plane by 25. The conversion from metres to centimetres caused more problems than expected. Common mistakes were dividing by 100 instead of multiplying by 100 or using 1 metre = 10 centimetres or 1 metre = 1000 centimetres. Some students used the scale correctly and divided 19.2 by 24 to find the length of the scale model but forgot to convert their answer to centimetres. Many students gained just one mark for $19.2 \times 100 = 1920$.

Question 5

In this question students were required to convert metric units, in this case kilometres to metres. Generally speaking, the students performed well, but there was evidence of students not fully

understanding their conversion and either dividing by 1000 rather than multiplying or multiplying by 10 or 100.

Question 26

Conversion of metric units of volume is clearly something that students at this level find difficult. Various powers of 10 were used, most commonly 10 and 100 rather than 1000.

Question 9

Students generally did well on the first two parts of the question but fewer achieved the mark for part (c).

In part (a) the vast majority gave an answer of 25 with a few gaining the mark for 24. Some obtained an answer of 24 by using the formula, this could not score the mark for part(a) as it used an incorrect method.

In part (b) the vast majority of students answered correctly with only a few multiplying by 10 instead of dividing. Pupils should be reminded to read questions correctly and double check their answers. A few students used 25 instead of 40 in the formula and this misconception did not score any marks.

Part (c) was answered less well. The most common correct response was saying 'difference of 1' or a 'difference of 1 mile' both gained the mark. Those who didn't achieve the mark either described the process they used (looking at scale and using a formula) or simply restated their answers without a comparison. Students should practice comparing values and methods to help with this style of question. A significant proportion of students compared the accuracy of each answer and almost always believed a formula to be more accurate than reading the scale. As this formula was stated to be an approximation this was considered to be an unacceptable comparison.

Question 2

Students do find conversions difficult and even at this simple level approximately a third of the students gave an incorrect answer, with 3000 being a popular incorrect answer.

Question 1

For the first question on the paper, this question was not well answered. Many students were clearly unaware of the conversion factor of centimetres into millimetres. The most common errors were using a factor of 100 to give an answer of 4000 or using a factor of 10 to divide rather than multiply with 40 being often given.

Question 29

Most found this question challenging. Many students just offered the wrong answer of 3000 or 30000 or 300 on the answer line. One of the most common errors was converting metres to km by multiplying by 1000. A significant proportion divided by 1000, correctly, to convert metres to kilometres and thought they had finished. The majority of the marks given were for seeing 0.03 or 108000.

Question 4

In line with previous series students found this conversion question more difficult. Just over half of the cohort were able to do this simple conversion. Centres are advised to spend time on this skill as it is often required.

Question 14

In part (a), the answer of 30 was most often correct. But in part (b) many candidates were unprepared for the requirements for reading from the graph and scaling their reading. There were very few who chose the most appropriate value of 20 to scale to 80, and many who took inaccurate readings from the axis. This question highlighted that candidates need more practice with this topic of the curriculum.

Question 27

Part (a) was poorly answered; it was rare to see a correct answer with 80, 800, 0.8, 0.08 all appearing more regularly than the correct answer of 0.008
In part (b) conversion between km and m remains a weakness; in too many cases candidates showed a division operation instead of multiplication, even worse with 100 instead of 1000. The proportional factor of 1000 was almost always correct. Conversion between hours and minutes was, perhaps predictably, less effectively completed overall with many attempts dividing by 60 once rather than by 60 × 60.

Question 3

Most students could change between metres and centimetres but converting between metric units remains challenging for some students with many forgetting the conversion factor to use.

Question 4

Common incorrect answers of 400 or 40000 were seen, from a misunderstanding of how many grams there are in a kilogram.

Question 3

Over two thirds of students could change between metres and centimetres. Converting between metric units still remains challenging for some students with many forgetting the conversion factor to use.

Question 2

It was pleasing to see that many more students could successfully convert between litres and millilitres compared to previous sessions. The most common error was to divide by 100 rather than 1000.

Question 16

Part (a) required an accurate reading from the conversion graph provided, and many students were able to give an answer within the acceptable range of 167 to 173 and those not gaining the mark often demonstrated they knew how to use the graph correctly but made an error when interpreting the grams scale.

Part (b) however, was often poorly attempted in comparison. Successful students were those who used the graph wisely to extrapolate data and clearly showed what reading they were using and how this multiplied to make 1000g. Many students were either competent in using readings from the graph as a factor of 1000 or applied a build-up method of various readings.

Of the students identifying the need to use a factor of 1000 and reading from the graph, most go on to get full marks. Some students only gained one of the two marks available as they were unable to interpret the scale for ounces, e.g. reading 100g = 3.5 ounces as 100g = 2.8 ounces, but could follow through and scale up correctly.

Another common error that students made was to use 300 grams as part of a build-up, usually equating this to 10 ounces or more before multiplying by 3 and adding a reading for 100g. This approach gained no credit due to 300g being outside of the range of the graph.

Extrapolation has always proved to be a challenging topic for students and in this series, although improvements can be seen, many of the students show insufficient working when the answer is outside of the specified range as incorrect readings need to be supported to gain credit.

Question 2

This question saw varied results; the majority of students were able to gain one mark for an answer of 8. A good portion of the cohort scored no marks, with the common incorrect answer being 80 - other incorrect responses involved multiplying by 10 or 100.

Question 3

Most learners knew that 1cm = 10mm and were able to use this to successfully convert 15 centimetres to millimetres. There were a significant minority of learners who incorrectly used the conversion factor and gave an answer of 1.5 millimetres having divided rather than multiplied by 10. A number of students also incorrectly used a multiplier of 100 rather than 10, giving an answer of 1500.

Question 22

A large range of approaches to find comparable figures were possible and seen in this best value for money involving a currency conversion question, and quite often learners lost track of what they were doing and did not complete the processes required and responses gaining full marks were rarely seen. Partial marks, commonly 1 mark, was very common for a correct starting calculation and this was most often for a process to perform a currency conversion. Despite correct use of the conversion factor, the majority of learners were not able to use direct proportion effectively or at all in order to find the cost for the same weights in both places. The most successful weight comparisons made were learners who used a unitary method to find comparative figures for either 1 gram, 100 grams or 1800 grams. Some learners attempted to convert the price and then simply double the cost in London to compare 400 grams to 360 grams but this kind of comparison was often insufficient to gain full credit. Units were not required for the final answer, but if stated they did need to be correct to gain the last mark.

It should also be noted that the working for this question was often presented in a very messy and unstructured way that was often difficult to follow, particularly when a variety of approaches were shown in a single response with no clear indication as to which method the candidate wished to be marked as their final answer. In such cases, the general marking guidance is to mark each method and then award the lower number of marks. Premature rounding or truncation was also evident but was not penalised if correct to 2 significant figures.

Question 11

In part (a), a good number were able to gain 1 mark with a correct answer of 16. The most common incorrect answer was 15.2, presumably from misinterpreting the scale on the horizontal axis. Part (b) was not answered well with few learners gaining 3 marks. To make progress readings needed to be taken from the graph that could be used to convert 50 kilometres into miles and a variety of different ways of doing this were seen. A tolerance of one small square was allowed for the reading but it was still common to see inaccurate readings given in the workspace. Even if inaccurate readings were taken, the second method mark could still be gained if the readings were used in a complete method and this was often seen. Some learners attempted to convert 17 miles to km and go from there; this rarely led to a correct answer but it was often awarded the first M1 for an accurate reading.

Question 13

This question saw the full range of marks awarded, with a small number of learners gaining 4 marks. Of those that didn't, a variety of errors were seen such as,

- no/incorrect conversions (but could still gain 1 or 2 marks for the process),
- correctly converting the dimensions for the crate or the box and dividing the corresponding lengths but then adding the results rather than multiplying
- finding the volumes for both the crate and the box but dividing box by crate instead of vice versa.

Learners who tried to convert units of volume after finding the volume of the crate or a box often used the incorrect conversion.

Question 3

Learners were often able to convert from millimetres into centimetres with many giving the correct answer of 6 centimetres. Common incorrect answers generally involved applying an incorrect conversion factor leading to answers of 600, 0.6, 0.06, 0.006 or 0.0006.



Examiners' Report
Principal Examiner Feedback

November 2020

Pearson Edexcel GCSE (9 – 1)
In Mathematics (1MA1)
Foundation (Calculator) Paper 3F

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

November 2020
Publications Code 1MA1_3F_2020_ER
All the material in this publication is copyright
© Pearson Education Ltd 2020

GCSE (9 – 1) Mathematics – 1MA1
Principal Examiner Feedback – Foundation Paper 3

Introduction

The overall quality of the presentation of work was good. However, students need to read the questions carefully. There remain a concerning number of cases where students copy down the wrong figures from the question, mis-copy their own figures, or round figures almost randomly. Equally another error sometimes occurs when students prematurely round or truncate figures, either their own figures or figures from the calculator, which usually result in lost accuracy marks and could also make questions more difficult than they were designed to be.

Approaches to questions that required some interpretation or explanation were inconsistent. Questions 10 and 21 were answered well, but poor attempts were made in questions 15 and 26. On too many occasions students included contradictory or incorrect statements, which cannot be credited.

Within a broad range of questions, the paper was able to discriminate well. Weakest areas continue to be the application of ratios, scales and rates, but also algebraic manipulation and problem solving. Most demonstrated good use of a calculator, though on some occasions it was clear that they did not have an understanding of the way in which their calculator worked or did not have one at all, such as in question 9.

Questions which had a slightly unexpected approach, that is required more thought, caused immediate problems for many, even in the earlier part of the paper. This includes questions 18, 20 and 24. Question 25 to 29 were the more challenging questions for those striving to demonstrate ability at the highest grades available, and a significant proportion of students therefore failed to score on these questions.

There were far fewer attempts using trial and improvement approaches. These mainly occurred when students showed evidence of not having a calculator, mainly evident in questions 15, 18, 19 and 20 where non-calculator methods were also seen, such as multiple additions.

The inclusion of working out to support answers remains an issue for many; but not only does working out need to be shown, it needs to be shown legibly, demonstrating the processes of calculation that are used. This is most important in longer questions, and in “show that” questions.

Report on Individual Questions.

Question 1

This was a poorly answered question. Most students gave the correct answer of 3 but 300, 30 and 3000 were frequently seen.

Question 2

A well answered question with nearly all giving the correct answer of 8.

Question 3

This was not always answered correctly.

Question 4

There were few incorrect answers in this question.

Question 5

This was very well answered with few failing to gain the mark. The most common error was the absence of one of the numbers.

Question 6

A very well answered question. There were a few who gave the answer of 4 to part (a).

Question 7

Students were generally very successful with this question with most obtaining full marks. Those achieving partial marks tended to mis-read the shaded section and recorded the fraction unshaded instead leaving their answer as $\frac{1}{4}$. A significant minority failed to give their answer in its simplest form, usually leaving the answer as $\frac{12}{16}$.

Question 8

This question was generally well done with the majority dividing 200 by 25 (some with multiple additions of 25) and then completing the process of 9.75 × 8 and giving the correct answer 78. Some students preferred to list eight lots of £9.75. The most common errors were students multiplying the cost by 200 or by 25.

Question 9

Parts (a) and (b) were not always answered correctly, with students having difficulty with the order of operations on their calculators.

It was rare to see any correct answers to part (c). Knowing the meaning of the term “reciprocal” is clearly a weakness in students.

Question 10

Most students got the marks in parts (a) and (b).

In part (c) students were able to explain that the drop in the first 3 minutes was steeper than the last 3 minutes. Some struggled to articulate this and some forgot to agree and imply that Pam was correct. There were a wide variety of values presented by students, although this question assessed the interpretation of the graph rather than the accuracy of reading values. Students generally used suitable values to explain their reasoning. Some students didn’t use the graph at all but tried to explain that water cools more quickly when it is hotter.

Question 11

Many responses achieved full marks. Many managed to use the fact that angles in a quadrilateral sum to 360 or found the angle on the straight line to *y* was 70 degrees and score one mark. Not all students who correctly calculated angle *PSR* were able to complete this question correctly, deciding to go off in all sorts of related incorrect calculations. Some of the weaker students knew that angles on a straight line totalled 180° but chose to use angle *QPS* with angle *y* to sum to this total.

Question 12

Part (a)(i) was well answered. In parts (a)(ii) and (b) it was clear students did not properly understand the meaning of "term". This was evidenced by statement involving algebra, "*n*th term", "*n* –5" and numbers not relating to the sequence given in the question.

Question 13

Many students added up the numbers that they saw on the diagram to get an answer of 26. Many more managed to score at least one mark on this question as they identified the length of one of the missing sides, usually on the diagram. For some reason finding 2cm was much more prevalent than finding 6cm. Some then forgot to find the missing length of 6cm leading to an answer of 28. The majority understood the meaning of perimeter, but some divided the shape into rectangles and added together the perimeter of both rectangles. The other common mistake was trying to find the area.

Question 14

In part (a) most students understood the need to collect like terms and it was often done successfully. If full marks were not awarded, students usually achieved one method mark, usually for the 5*x*.
The negative sometimes caused problems when collecting the *y* terms. Common errors seen included $6xy$ and $5x^2 \pm y^2$.
Part (b) was well done by many with the answer 3 on the answer line, though a formal algebraic approach was not seen very often, students preferring to show 22 – 7 ÷ 5. Some showed "–7" written by the equation but this was not credited unless the next stage was shown by, for example, writing $5p = 15$. Few attempted to divide by 5 as their first step. The most common incorrect answer seen was 10 from subtracting the 5 and 7 from 22.

Question 15

There were some good attempts at this question, encouraging since there were several steps needed to get to the answer: division to get the number of packs and rounding 7.5 to 8 before calculating the cost. Conclusions were well stated. The common error was to work out the individual cost of the batteries in each shop and then find the cost of 30 which clearly demonstrated misunderstanding about the packs.

Part (b) was usually well stated with 'No' and a clear reason. Most calculated the cost of 30 individual batteries of £12 and £13.50 and stated 'No, shop A is still cheaper'.

Question 16

In part (a) the majority wrote the correct answer on the answer line. Some went on to convert their answer to a decimal which was unnecessary. It was also pleasing to see most students using the

correct notation for probability with only a minority using the incorrect notation of a ratio. Of those not gaining both marks, most earned M1 for $\frac{5}{n}$ or $\frac{m}{11}$.

In part (b) a common incorrect answer was 0.3, but the majority of students gave the correct answer of 0.7, which was sometimes written as an equivalent fraction.

Question 17

The majority of students attempting this question gained full marks. There were many who gained 1 mark for drawing only one 6cm line correctly, though quite a few struggled to draw an accurate isosceles triangle. Though they were not required in this question, there was very little evidence of construction lines/arcs drawn; it seemed most measured using their rulers.

Question 18

Many students secured one mark for providing an accurate conversion using the graph. However, others drew lines on the graph, not always correctly, but failed to take any accurate readings from these. Of those that did, most went on to complete the method, but many of these confused their $ with £ and so lost the method mark. Other students chose to take their initial reading near the origin, for instance using £5 = $6, which by the time they had multiplied it up to $345 was too inaccurate to give an answer within the range allowed. There was some misunderstanding of the scale on the $ axis, with some students assuming 1 small square = $1

Question 19

In part (a) to achieve both the marks, students needed to understand through proportional reasoning that the number of tuna sandwiches represented 40% of the total sold. Many students were not able to demonstrate this and as such scored no marks. There were some who adopted a bar modelling approach e.g. stating 40% = 56 so 20% = 28, and adding 56 + 56 + 28.

Part (b) was answered slightly better, but still demonstrated that students need more practice of ratio and proportion. Where students showed some understanding of what was required but chose to use a percentage of 18 to scale up were often not able to achieve a solution that was accurate enough.

Question 20

Students that were able to demonstrate some understanding of the context were rewarded with one of two process marks if they able to sum the total of money (200) that Akhtar, Ben and Carl had without the £10 notes or used the mean amount to calculate the total of all the money (240). After scoring one or two process marks there was a variable understanding of how to use these values to solve the problem. Of those who made mistakes many appreciated that the answer had to be an integer and rounded their mistakes rather than reflecting that there had to have been an error and a further check of their work was needed.

Question 21

Part (a) was answered well, with many students gaining the mark. The most common incorrect answer was $\frac{25}{50}$, a probability statement rather than a statement of the number of times.

In part (b) some students thought that the answer was Paula because "10 times was enough" as her approach was quicker. Lots of students had the right idea that the more trials, the more reliable your results, but some failed to actually say "Simon, because…" A common mistake was just talking about 100 throws and not making comparisons.

Question 22

This question was attempted by most students but very few correct plan views were seen. Most students incorrectly drew a net or a side elevation involving a square with a triangle attached. Out of the ones who scored any marks, most scored one mark for a square with sides 6cm, but without the diagonals drawn.

Question 23

Part (a) was not well answered. n^{15} was a common incorrect answer.

In part (b) c was usually shown correctly (frequently written as c^1 but often paired with d^4). Most achieved one mark for c or (less likely) d^3. There were a significant number of correct values for c found from an incorrect method.

In part (c) many students were unsure where to start and a common incorrect answer given was $2.5x > 7$. Of those students who did start to approach the question correctly, many ignored the inequality sign throughout the process getting $x = 2.8$ or $x = \frac{14}{5}$ and as a result could not gain the accuracy mark.

Question 24

Most students attempted this question but very few achieved full marks. The distance, speed, time triangle did not help in this question; students always seem to make more errors at this level when using it rather than taking an everyday approach to the problem. Some added the distances together and the speeds together then divided by 2. Quite a few students gained one mark, but more students gained two marks for finding the times as decimals and adding the two times but failing to convert the times correctly and ended up with 2 hr 75 mins or 3 hr 15 mins which were the most common answers seen.

Question 25

Error intervals remain a weakness and was poorly attempted. Some were able to correctly give 9.35 but rarely gave 9.45; a few 9.44 but not 9.4499...

Question 26

Many were able to secure the first process mark for finding the area of one of the lawns (45 m^2 or 140 m^2) or the amount of seed available (10kg) but did not proceed any further with many reasoning incorrectly that if 3kg covered 5 × 9 area, then 6kg would cover 10 × 18, more than is needed. Other students were successful in gaining the second process mark mainly for the coverage of 1 kg of grass seed ($15m^2$). The most successful approaches seen where students were able to reach the correct conclusion were finding the amount of grass seed needed (9.3…kg) and comparing it with 10kg or finding the area that could be seeded with 10kg ($150m^2$) and comparing it with $140m^2$.

Part (b) required reasoning supported by correct figures and as a result, students were not successful in gaining many marks.

Question 27

Part (a) was generally answered well, and most students were able to write at least two correct probabilities on the tree diagram, sometimes writing these as equivalent fractions of $\frac{2}{4}$2/6 and 4/6. Some students chose to try to use decimals for this problem but were not able to score any marks due to inaccurate approximations of $\frac{1}{3}$.

Having perhaps achieved one or both marks in part (a) many students lacked the knowledge that they needed to select the correct branches and multiply the fractions together and the few that did were rewarded with the marks in part (b).

Question 28

There were very few correct answers in part (a). There seemed little evidence of an understanding that the solutions could be read from the graph. A significant number attempted an algebraic solution, but their algebraic abilities were insufficient for such a task.

In part (b) there were a few who got full marks but for those who knew to read from the intercepts often included 2 with 0.6 and 3.4. Some spoilt their answers by writing the two values as coordinates. Other errors included those who attempted to substitute values into the equation, then plot the points on the graph, using algebraic solving/factorising methods or stating the *y* value at the minimum point.

Question 29

Many started off knowing that they needed to multiply the dimensions 6, 4 and 10 but many failed to take into account that the end shape was a triangle and division by 2 was required. The biggest failing, after calculating the volume correctly, was to divide by 0.8 getting the answer 150. For those students that only omitted division by 2 there was a special case mark for the answer of 192.

Summary

Based on their performance on this paper, students should:

- accurately transcribe figures taken from the question, and taken from their own work
- avoid rounding or truncating answers, and to use the most accurate values in subsequent calculations
- ensure that their work is legible for examiners to consider awarding marks. For example, avoid any possible confusion when writing 1s and 7s, when writing 4s and 9s, and even when writing 0s and 6s.
- ensure that they include working out to support answers
- work on algebraic manipulation and derivation, and application of ratios, scaling and rates in preparing for future examinations.
- learn the meaning of technical terms such as “reciprocal”, the “term” of a sequence and error intervals
- continue to need practise answering response type questions where a written explanation is required.

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom