Chhetri Academy

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GCSE MATHS

Algebra

Edexcel 1MA1 | Subtopic collection Topic 12

Expanding brackets

Foundation tier

Answers and examiner comments

26	2012-2025	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.

Question		Working	Answer	Mark	Notes
25	(a)		$6y - 15$	1	B1 cao
	(b)		$4x(2x + y)$	2	B2 cao (B1 for $x(8x + 4y)$ **or** $2x(4x + 2y)$ **or** $4(2x^2 + xy)$ **or** $4x(ax + by)$ where a, b are positive integers **or** $ax(2x + y)$ where a is a positive integer **or** $4x(2x \quad y)$)
	(c)	$10t = gh$ $h = \frac{10t}{g}$	$\frac{10t}{g}$	2	M1 for clear intention to multiply both sides of the equation by 10 (eg. ×10 seen on both sides of equation) **or** clear intention to divide both sides of the equation by g (eg. ÷ g seen on both sides of equation) **or** $10t = gh$ **or** $\frac{t}{g} = \frac{h}{10}$ **or** fully correct reverse flow diagram eg. ← ×10 ← ÷g ← A1 for $\frac{10t}{g}$ oe

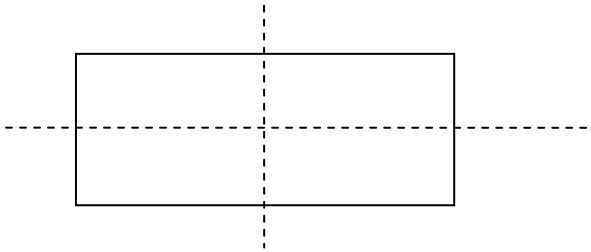
1MA0_1F

14	(a)	$5x + 35 + 3x - 6$	$8x + 29$	2	M1 for $5x + 35$ OR $3x - 6$ or $8x$ or 29 A1 for $8x + 29$
	(b)		$3ab(a + 2b)$	2	B2 for $3ab(a + 2b)$ (B1 for correct partial factorisation $a(3ab + 6b^2)$ or $b(3a^2 + 6ab)$ or $3a(ab + 2b^2)$ or $3b(a^2 + 2ab)$ or $ab(3a + 6b)$ OR $3ab(ma + 2b)$ or $3ab(a + nb)$ where $m \neq 1$, $n \neq 2$) [B0 for partial factorisation using only an integer e.g. $3(a^2b + 2ab^2)$]

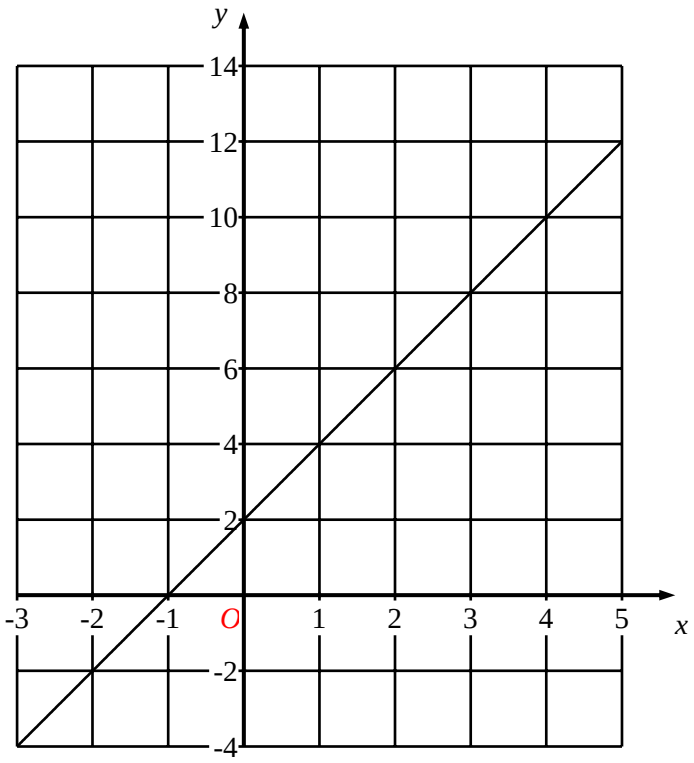
5MB2F_01

20	(a)		$3(t + 4)$	1	B1 for $3(t + 4)$ or $3 \times (t + 4)$ oe
	(b)	$14x + 7 + 6x + 18$	$20x + 25$	2	M1 for $7 \times 2x + 7 \times 1$ or $14x + 7$ or $6 \times x + 6 \times 3$ or $6x + 18$ A1 for $20x + 25$ (accept $5(4x + 5)$)

11.



18 b



Original question 27

The full source mark scheme begins on page 53. Use the original paper code, tier and question number shown above.

23	(a)		10	1	B1 cao
	(b)		8.5	1	B1 accept $\frac{17}{2}$ or $8\frac{1}{2}$
	(c)		32	1	B1 cao
	(d)		$6 + 3t$	1	B1 for $6 + 3t$

PAPER: 1MA0_1F

16	(a)		$5m + 10$	1	B1 cao
	(b)		$y(y + 3)$	1	B1 cao
	(c)		a^9	1	B1 cao

PAPER: 5MB2F_01

15	(a)		$10c + 15d$	1	B1 cao
	(b)	$x + x + 3 + 2x = 4x + 3$ $2(3x - 2) = 6x - 4$ $6x - 4 - (4x + 3)$	$2x - 7$	4	M1 for $x + x + 3 + 2x$ $(= 4x + 3)$ M1 for $2(3x - 2)$ $(= 6x - 4)$ M1 for '$6x$' –'$4x$' – '4' ± '3' oe A1 cao OR M1 for $2(3x - 2)$ $(= 6x - 4)$ M1 for '$6x$'$- x - x - 2x$ $(=2x)$ oe M1 for '-4' ± 3 A1 cao

PAPER: 5MB2F_01

PAPER: 1MA0_1F

Question		Working	Answer	Mark	Notes
23	(a)		$2m^2 + 6m$	1	B1 cao
	(b)		$3xy(y - 2)$	2	B2 for $3xy(y - 2)$ (B1 for $3x(y^2 - 2y)$ or $3y(xy - 2x)$ or $xy(3y - 6)$ or $3xy$(a two term algebraic expression))
*24			3	4	M1 for attempt to calculate at least one area eg 10×7 (=70) or 16×10 (=160) M1 for a method to find the total area (=124) M1 (dep on M1) for "124" ÷ 36 C1 (dep on M3) for 3 (pigs) clearly identified and supported by correct calculations Or M1 for an area of 36m² drawn with dimensions shown M1 for 3 areas of 36m² drawn with dimensions shown M1 for method to find the area left (=16) C1 (dep on M3) for 3 (pigs) clearly identified and supported by correct calculations

23	(a) (b)		$3(x + 2)$ $7y - 16$	1 2	B1 cao M1 for any intention to expand a bracket eg $5y - 10$ or $2y - 6$ A1 cao
*24			Decision (No the attendance target was not met)	3	M1 for attempting to find total number of students or 1210 seen M1 for $\frac{'1092'}{'1210'} \times 100$ oe or $\frac{'118'}{'1210'} \times 100$ oe C1 for correct decision with 90.(2479...) or correct decision with 6 and 9.(752...) **OR** M1 for attempting to find total number of students or 1210 seen M1 for $\frac{94}{100} \times$ '1210' oe C1 for correct decision with 1137 (.4) and 1092 or correct decision with 72(.6) and 118 **OR** M1 for a correct % method for one year, e.g. $\frac{192}{208} \times 100$ or $\frac{94}{100} \times 208$ M1 for a correct % method for each year C1 for correct decision with 92.(30...), 90.(87...), 89.(31...), 89.(27...), 89.(91...) or 195(.5..), 226.(9…), 246.(2..), 245.(3…), 223.(7…)

PAPER: 1MA0_2F

20	(a)		p^7	1	B1 cao
	(b)		$-5m + 10$	2	M1 for $3m + 12$ or $-8m - 2$ or $8m + 2$ A1 for $-5m + 10$ or $10 - 5m$ or $-5(m - 2)$ or $5(2 - m)$
	(c)		$n(n - 7)$	1	B1 cao

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
21	(a)		250	2	M1 for $400 \div 8$ or $\frac{5}{8}$ oe A1 cao
	(b)		60	3	M1 for $\frac{16}{80}$ or $\frac{300}{80}$ oe M1 (dep) for "$\frac{16}{80}$" × 300 or "$\frac{300}{80}$" × 16 A1 cao
22	(a)		Correct shape	2	B2 for correct reflection with vertices (–4, 2) (–6, 3) (–6, 7) (–4, 6) (B1 for reflection in a vertical or horizontal line)
	(b)		Correct shape	2	B2 for correct rotation with vertices (–1, 3) (–5, 3) (–6, 5) (–2, 5) (B1 for rotation of 90° clockwise about (0,1) **or** correct orientation fully in correct quadrant)
23	(a)		Reasons	2	B2 for 2 reasons from: no time frame, vague response boxes, not exhaustive eg "always" (B1 for 1 reason)
	(b)		Question written	2	B1 for a suitable question which includes a time frame (the time frame could appear with the response boxes) B1 for at least 3 non-overlapping exhaustive response boxes with no use of inequality symbols

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*24			Conclusion (supported)	5	M1 for finding the area of one rectangle which is not 6 × 10 eg 2×2.5 (=5) or 4×10 (=40) or 2.5 × 6 or 5 × 2 M1 for a complete method to find the total area eg 5+5+40 or 60−10 (=50) M1 for a complete method to find the number of tins needed eg "50" ÷ 5 ÷ 2.5 (=4) OR for a complete method to find the number of litres needed. eg "50" ÷ 5 (=10) OR for a complete method to find the area covered by 3 tins eg 3×2.5×5 (=37.5) A1 for 50 (m^2) **and** (4 tins needed) **or** for 10 (litres) **and** 7.5 (litres) **or** for 50(m^2) **and** 37.5(m^2) C1 (dep M2) for a conclusion supported by their calculations

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**
1		3rd row in table for beans removed	Standard mark scheme
3	(a)	Background grid has been removed. Labels added above the shapes. MLP only: Shape B and D exchanged.	B1 for A, B
3	(b)	Background grid has been removed. Labels added above the shapes. MLP only: Shape B and D exchanged.	B1 for D cao
4	(b)	Braille only: Coombe Florey row removed.	B1 cao
5		Diagram enlarged.	Standard mark scheme
	(b)	Probability scale enlarged. The wording 'with a cross (x)' has been removed.	Standard mark scheme
	(c)	Probability scale enlarged. The wording 'with a cross (x)' has been removed	Standard mark scheme
7	(a)	Diagram enlarged	Standard mark scheme
	(b)	Model of a cuboid provided for all candidates. Diagram enlarged and also provided for MLP. Wording changed 'Name the solid shape shown.' Answer line added	B1 for cuboid

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
9		Grid enlarged. Shading changed to dotty shading. Label added above the shapes. 'centimetre grid' replaced by'grid of squares'. Wording added 'Each square on the grid represents a one centimetre square.'	Standard mark scheme
13	(a)	Diagrams removed.	Standard mark scheme
	(b)	Diagrams removed.	Standard mark scheme
14		Grid enlarged. Small squares removed.	Standard mark scheme
17	(a)	Wording added above the table 'There are four spaces to fill.'	Standard mark scheme
	(b)	Grid enlarged. Right axis labelled.	Standard mark scheme
18	(a)	Diagram enlarged.	Standard mark scheme
	(b)	Diagram enlarged.	Standard mark scheme
19	(a)	Model provided for all candidates. Diagram enlarged and also provided for MLP	Standard mark scheme
	(b)	Question changed: 4 nets drawn A, B, C and D. Wording removed 'In the space below, sketch a net of the prism.' Wording added 'Which shape A, B, C or D shows the net of the prism.'	B2 for B cao
	(c)	Model provided for all candidates. Diagram enlarged and also provided for MLP.	Standard mark scheme
21		Diagram enlarged. Dot added to the centre. Arrow head changed to an open headed arrow. Left side of arrow removed.	Standard mark scheme

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
22	(a)	Reflection drawn on the diagram. Shading changed to dotty shading. Wording changed 'It shows shape P and shape Q given on a grid. Describe fully the transformation that maps shape P onto shape Q.' Grid enlarged. y axis is cut at -4. 3 answer lines given.	B1 for reflection B1 for $x = -1$
	(b)	Rotation drawn on the diagram. Wording changed 'It shows shape P and shape S given on a grid. Describe fully the single transformation that maps shape P onto shape S.' 3 answer lines given.	B2 for all three of: Rotation 90° anti-clockwise Centre (0, 1) (B1 for two)
24		Diagram enlarged. Braille only: Plan of floor labelled ABCDEFGH as 1F Q24.	Standard mark scheme

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
24 (a)		±6	M1	for one value (6 or −6) or $\sqrt{36}$ or an embedded answer eg $2 \times 6^2 = 72$
			A1	±6
(b)	$6x^2 - 4x + 3x - 2$	$6x^2 - x - 2$	M1	for at least 3 terms correct out of a maximum of 4 from expansion, or 4 terms correct ignoring signs.
			A1	cao
(c)		$(x + 3)^2$	B1	for $(x + 3)^2$ or $(x + 3)(x + 3)$

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

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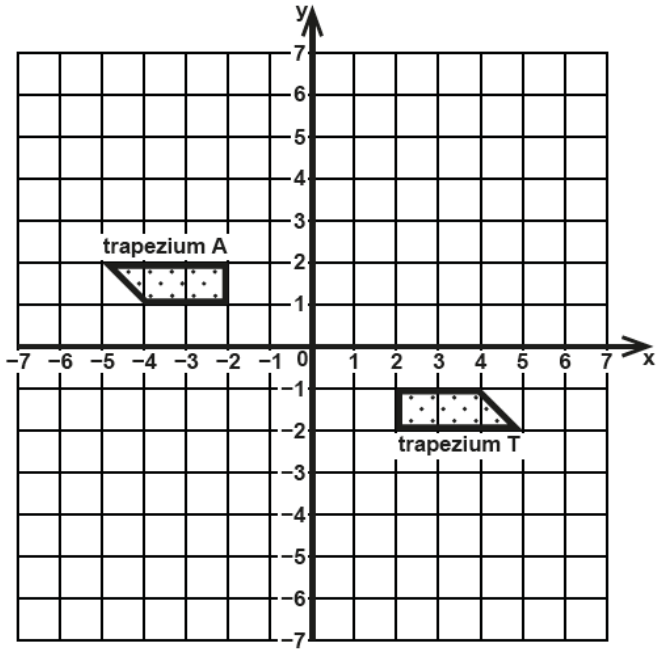
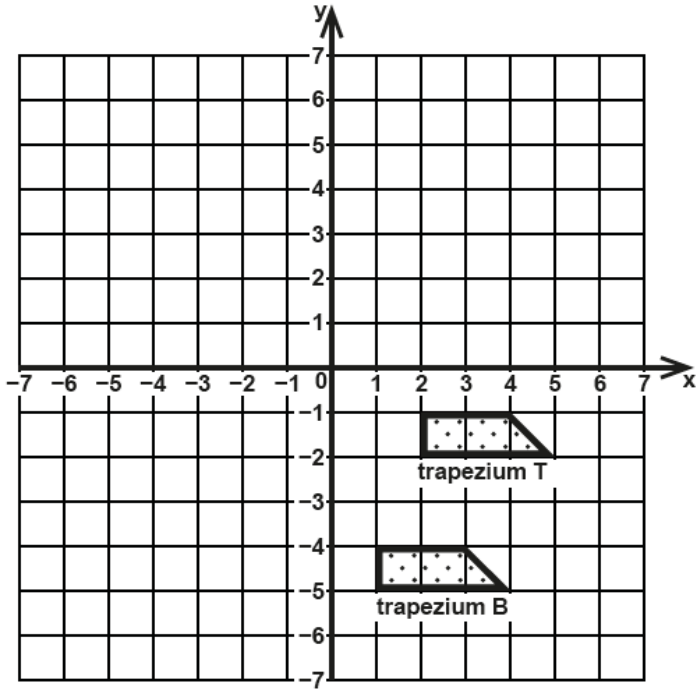
Angles: ±5°
Measurements of length: ±5 mm

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
5		Table has been turned to vertical format and left aligned. Numbers in the table have changed to: Bus: 15, Walk: 10, Car: 30 and Bicycle: 5. Then in part (b): Diagram enlarged. 10 degree markings have been added to the pie chart. Wording added 'It shows a pie chart.'	(a) M1 … eg 15+30+5 or 60 – 10 (=50) or 0.83(..) or 1 – 1/10 oe A1 for 5/6 or equivalent fraction (b) M1 for method to find the angle for at least one sector eg $\frac{10}{60}\times 360$, $\frac{30}{60}\times 360$, $\frac{5}{60}\times 360$, $10\div\frac{60}{360}$, $30\div\frac{60}{360}$, $5\div\frac{60}{360}$ oe (0.166..) NB: could be implied by one angle drawn accurately. Then standard mark scheme for angles W: 60°, C: 180°, B: 30°
8		Diagram enlarged. Crosses have been changed to solid dots. Axes labels have been moved to the left of the horizontal axis and above the vertical axis.	Standard mark scheme

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
9		Outline of the map has been removed. North lines have been made 10cm to allow for use of specialist equipment. Cremford point has been moved so the distance between Backley and Cremford is now 11cm. The scale has been moved above and to the left of the diagram. Question wording changed to 'It shows the position of two villages, Backley and Cremford.'	(a) M1 for accurately measuring the distance between Backley and Cremford as 10.8 cm – 11.2 cm oe or their measurement × 0.5 oe A1 for ans in the range 5.4 to 5.6 (b) standard mark scheme
10		Diagram enlarged. Shading removed. Shape P has been moved up one square. The grid has been reduced by removing a row from the bottom, top and right side. Wording changed to 'It shows two shapes drawn on a grid of squares. Each square on the grid represents a one centimetre square.' Labels 'P' and 'Q' removed from inside of the shapes and labelled 'shape P' and 'shape Q'.	Standard mark scheme
12		Diagram enlarged. Wording added 'It shows a frequency tree.' Wording added 'There are six spaces to fill.' Braille: will label the spaces to fill (i) to (vi).	Standard mark scheme
14		Braille only: a changed to s, b changed to t.	Standard mark scheme but for Braille letters changed as indicated.
18		Both diagrams enlarged and put on the same page in the diagram book. Wording changed to 'There are 8 points equally spaced on the circumference of the circle, as shown in the diagram for Question 18(a)'. Wording changed to 'Four of the points are moved, as shown in the diagram for Question 18(b)'.	Standard mark scheme

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
20		The grid has been split into two parts for part (a) and part (b).	
20	(a)	Question reversed. Trapezium T and A have been put on a grid. Question wording changed to 'It shows trapezium T and trapezium A given on a grid. Describe the single transformation that maps trapezium T onto trapezium A'. 3 answer lines and have been provided	B1 for "Rotation 180° about the origin"
			

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
20	(b)	Question reversed. Question wording changed to 'It shows trapezium T and trapezium B given on a grid. Write down the vector that translates trapezium T onto trapezium B.' Vector brackets have been provided.	B1 for the vector $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$
			

PAPER: 1MA1_2F			
Question		**Modification**	**Mark scheme notes**
21	(c)	MLP and braille: a changed to e, b changed to f.	Standard mark scheme but for Braille letters changed as indicated.
22		Diagram enlarged. Arrows have been removed from 10cm and 6cm. Wording added 'BC = 10cm, AB = 7.5cm, AD = 24cm. The vertical height of the trapezium is 6cm.'	Standard mark scheme.
24		MLP and braille: *x* changed to *y*.	Standard mark scheme but for Braille letters changed as indicated.

Original question 16

The full source mark scheme begins on page 73. Use the original paper code, tier and question number shown above.

20	$9p + 13$	M1 A1	for method to expand one bracket, eg $5 \times p + 5 \times 3$ $(= 5p + 15)$ or $2 \times 1 - 2 \times 2p$ $(= 2 - 4p)$ or $-2 \times 1 - 2 \times -2p$ $(= -2 + 4p)$ cao	If an attempt is made to multiply by -2 in the second brackets then it must be done consistently.

Question	Answer	Mark	Mark scheme	Additional guidance
26 (a)	$10x^2 - 11x - 6$	M1	for 3 out of no more than 4 terms correct with correct signs **or** 4 correct terms ignoring signs	$10x^2 - 15x + 4x - 6$ NB: $10x^2 - 11x$ and $-11x - 6$ are indicative of 3 correct terms.
		A1	cao	
(b)	$(x + 1)(x + 3)$	M1	for $(x \pm 1)(x \pm 3)$ **or** for $(x + a)(x + b)$ where either $ab = 3$ or $a + b = 4$	
		A1	cao	

16	(a)	$10m - 15$	B1	for $10m - 15$ oe	Accept any reversing of order in the expression
	(b)	$3(n + 4)$	B1	for $3(n + 4)$ oe	Accept any answer in reverse order

Paper: 1MA1/3F

Question	Answer	Mark	Mark scheme	Additional guidance
22 (a)	$x^2 - 4x - 45$	M1	for 3 of 4 terms correct **or** 4 terms correct ignoring signs	3 terms correct can be implied, eg $x^2 - 4x + c$
		A1	cao	
(b)	$3x(3x + 2)$	B2	for $3x(3x + 2)$	
		(B1	for $3(3x^2 + 2x)$ **or** $x(9x + 6)$ **or** $3x(ax + b)$ where a and b are integers **or** $(3x + 2)$ as a factor)	

Paper: 1MA1/1F

Question	Answer	Mark	Mark scheme	Additional guidance
19 (a)	$x^2 - 4x$	B1	cao	
(b)	$5(3y - 2)$	B1	cao	
(c)	9	M1	for a correct first stage, eg. expanding brackets, $7 \times f - 7 \times 5$ (= 28) oe **or** for division of both sides by 7, eg. $\frac{7(f-5)}{7} = \frac{28}{7}$	
		A1	cao	

15	(a)	$2a + 2d$	B1	cao	Accept $2 \times a + 2 \times d$
	(b)	$y(6y - 5)$	B1	cao	Accept $y \times (6y - 5)$
	(c)	11	M1	for isolating x terms, eg $4x = 37 + 7$ or $4x = 44$ **or** for $x - \frac{7}{4} = \frac{37}{4}$ **or** for $37 + 7 = 44$ followed by "44" ÷ 4 (= 11)	
			A1	cao	

Paper: 1MA1/1F

17	(a)	$y^2 + 5y$	B1	cao	
	(b)	$2(2a - 3)$	B1	cao	
	(c)	2.9	M1	for a correct first stage eg. expanding the brackets, $2 \times 5x - 2 \times 4$ ($= 10x - 8$) **or** division of both sides by 2, eg $\frac{2(5x-4)}{2} = \frac{21}{2}$	
			M1	for isolating terms in x eg $10x = 21 + 8$	
			A1	oe	
	(d)	$20\,e^3 f^4$	M1	for any two of 4×5 (=20), e^{2+1} ($=e^3$), f^{1+3} ($=f^4$) in a product or written as individual terms	Do not award if there is contradiction
			A1	cao	

21	(a)	x^{15}	B1	cao	
	(b)	$40 - 10x$	M1	for method to expand one bracket or collect like terms, eg $4 \times x + 4 \times 3$ $(= 4x + 12)$ **or** $7 \times 4 - 7 \times 2x$ $(= 28 - 14x)$ **or** $4 \times x - 7 \times 2x$ $(= 4x - 14x)$ **and** $4 \times 3 + 7 \times 4$ $(= 12 + 28)$	
			A1	oe	
	(c)	$3x^2(5x + y)$	M1	for $3(5x^3 + x^2y)$ **or** $x(15x^2 + 3xy)$ **or** $3x(5x^2 + xy)$ **or** $x^2(15x + 3y)$ **or** $3x^2(ax + by)$	Where $a \geq 1$ and $b \geq 1$
			A1	cao	

17	(a)	$12 - 6x$	B1	for $12 - 6x$ (accept $-6x + 12$)	
	(b)	16	M1	for a correct first step, eg. $3y = 12 \times 4$ (= 48) or $\frac{y}{4} = \frac{12}{3}$	Do not accept ambiguous algebraic expressions
			A1	cao	
	(c)	$2(2p + 3)$	B1	cao	Do not accept equivalent expressions not fully factorised

20	(a)	m^6	B1	cao	
	(b)	x^{13}	B1	cao	
	(c)	$4p^3 + 12p^2$	B2	for $4p^3 + 12p^2$	
			(B1	for expanding the bracket to get $p^3 + 3p^2$ **or** $4p^3$ **or** $12p^2$)	

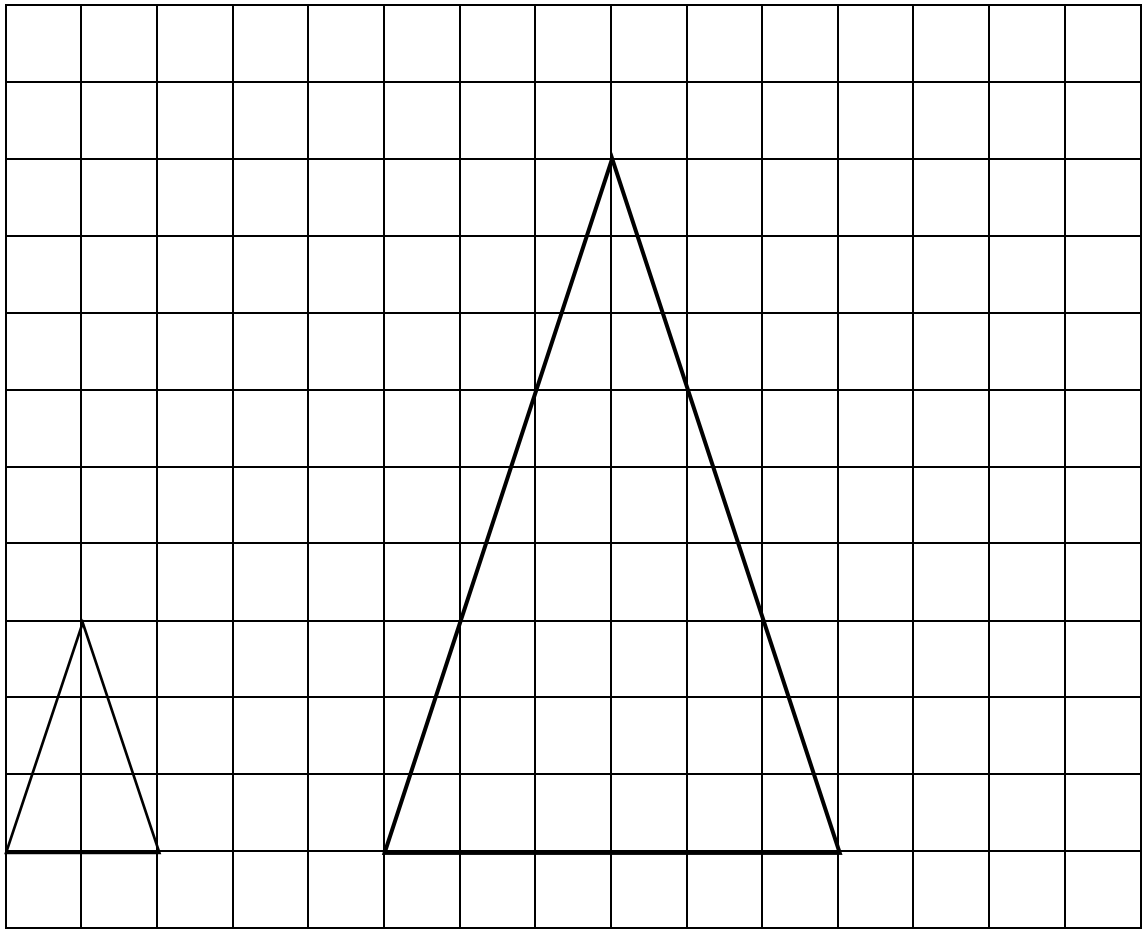
Paper: 1MA1/3F

27	(a)	$6x^2 - 11x - 10$	M1	for expanding bracket to obtain 4 terms with all 4 correct without considering signs or for 3 terms out of 4 correct with correct signs	NB $6x^2 - 11x$ or $-11x - 10$ can be considered 3 terms out of 4 correct with correct signs
			A1	cao	
	(b)	$(x - 4)(x + 4)$	B1	oe	

Qu 8a

Place	Tally	Frequency
castle	𝍸 𝍸 I	11
farm	𝍸 II	7
museum	𝍸 I	6

Qu 11



Modifications to the mark scheme for Modified Large Print (MLP) papers: 1MA1 1F

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PAPER: 1MA1_1F			
Question		**Modification**	**Mark scheme notes**
1		Wording added ‘five	Standard mark scheme
3		Letter ‘a’ changed to ‘p’.	Standard mark scheme but note change of letter
4		Wording added ‘Look at the diagram for Question 4 in the Diagram Booklet. It shows an angle marked x.’ Diagram enlarged. Angle rotated so the bottom line is horizontal. Angle moved outside of the angle arc and angle arc made smaller.	Standard mark scheme
7		“m” changed to “metres”	Standard mark scheme
8		Wording added ‘Look at the information for Question 8 in the Diagram Booklet.’ Wording ‘Here are the results’ removed and replaced with ‘The results are shown in the Diagram Booklet.’ Words replaced with single capital letters. Key added	Standard mark scheme
8	(a)	Wording added ‘below. There are six spaces to fill.’ Table enlarged. Wording added to the table ‘(C)’, ‘(F)’ and ‘(M)’.	Standard mark scheme
8	(c)	Wording added ‘Look at the diagram for Question 8(c) in the Diagram Booklet. It shows a grid.’ Wording added ‘on the grid in the Diagram Booklet.’ Diagram enlarged. Grid lines made black. Top two rows and right column removed. Braille: left and right vertical axis labelled.	Standard mark scheme but for Braille the B1 for labels to be awarded only for correct place labels on the horizontal axis.
9		Wording added ‘Look at the information for Question 9 in the Diagram Booklet. Selina has a bag of 22 counters.’ Information moved to the Diagram Booklet.	Standard mark scheme
10		Wording added ‘Look at the information for Question 10 in the Diagram Booklet. It shows’. Wording removed ‘Here are’. Frame removed.	Standard mark scheme

PAPER: 1MA1_1F			
Question		**Modification**	**Mark scheme notes**
11		Wording added 'Look at the diagram for Question 11 in the Diagram Booklet. It shows triangle P and triangle Q on a grid. Describe the transformation that maps triangle P onto triangle Q. Two cut out shapes may be available if you wish to use them.' Wording removed 'On the grid, draw an enlargement of the triangle with a scale factor of 3.' Triangle Q added to the diagram. Triangle P labelled. Diagram enlarged. Shading removed. Cut out shapes provided.	B1 for "Enlargement" B1 for "Scale factor 3" Award no marks if more than one transformation is given
12		In (a) wording added 'Given that'. Letter 'g' changed to 'm'. Letter 'h' changed to 'n'. In (b) wording added 'Given that'.	Standard mark scheme but note change of letter.
14		Wording added 'Look at the diagram for Question 14 in the Diagram Booklet. It shows a grid.' Diagram enlarged. For Braille: a (blank) table of values added with the words "You may use the table below if you wish". Axis labels moved to the top of the vertical axis and to the right of the horizontal axis.	Standard mark scheme.
22		Wording added 'Look at the diagram for Question 22 in the Diagram Booklet. It shows'. Wording removed 'The'. Wording removed 'lies'. Diagram enlarged. Cross changed to a dot.	Standard mark scheme
23		Wording added 'Look at the diagram for Question 23 in the Diagram Booklet. It'. Wording removed 'The diagram'. Diagram enlarged. Diagram rotated such that ABC is horizontal. Angles moved outside of the angle arcs and angle arcs made smaller. Wording added 'Angle DAB = x° Angle DBA = y° Angle DBC = w°'	Standard mark scheme
24		Letter 'x' changed to 'y'.	Standard mark scheme but note change of letter
27		Letter 'xchanged to 'y'.	Standard mark scheme but note change of letter

22	(a)	$13y - 1$	M1	for method to expand one bracket or collect like terms eg $3 \times 2y - 3 \times 5$ (= $6y - 15$) **or** $7 \times y + 7 \times 2$ (= $7y + 14$) **or** $3 \times 2y + 7 \times y$ (= $6y + 7y$) **or** $3 \times -5 + 7 \times 2$ (= $-15 + 14$)	May be implied by $13y$ **or** -1
			A1	oe	
	(b)	$3x(2x + 5)$	B2	oe	
			(B1	for $3(2x^2 + 5x)$ **or** $x(6x + 15)$ **or** $3x(ax + b)$)	
	(c)	$g = \frac{f - 11}{3}$	M1	for correct first step to rearrange eg $f - 11 = 3g + 11 - 11$ or $f - 11 = 3g$ **or** eg $\frac{f}{3} = \frac{3g}{3} + \frac{11}{3}$ **or** $-3g = 11 - f$ **or** answer ambiguously shown, eg $g = f - 11 \div 3$ **or** given as $\frac{f - 11}{3}$	May be seen in different equivalent form
			A1	oe	

Paper: 1MA1/2F

Paper: 1MA1/3F

Question	Answer	Mark	Mark scheme	Additional guidance
21 (a)	y^8	B1	cao	
(b)	e^6	B1	cao	
(c)	$3x^3 + 5x$	B1	cao	
(d)	$n^2 + 3n - 10$	M1	for 3 out of no more than 4 terms correct with correct signs or 4 correct terms ignoring signs	$n^2 - 2n + 5n - 10$ NB: $n^2 + 3n$ or $3n - 10$ implies 3 correct terms
		A1	cao	

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Mark Scheme (Results)

March 2013

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

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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.

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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

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

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)

PMT

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

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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)

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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)

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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})

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

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 $(x - 6)x$

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

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Summer 2018

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

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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. (eg. 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 (eg. 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.

11 Number in brackets after a calculation

Where there is a number in brackets after a calculation E.g. 2 × 6 (=12) then the mark can be awarded **either** for the correct method, implied by the calculation **or** for the correct answer to the calculation.

12 Use of inverted commas

Some numbers in the mark scheme will appear inside inverted commas E.g. “12” × 50 ; the number in inverted commas cannot be any number – it must come from a correct method or process but the candidate may make an arithmetic error in their working.

13 Word in square brackets

Where a word is used in square brackets E.g. [area] × 1.5 : the value used for [area] does **not** have to come from a correct method or process but is the value that the candidate believes is the area. If there are any constraints on the value that can be used, details will be given in the mark scheme.

14 Misread

If a candidate misreads a number from the question. Eg. uses 252 instead of 255; method or process marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review.

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

PMT

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1	6000	B1	cao	Accept 6 thousand or six thousand
2 (a)	−6,−5,0,6,12	B1	for −6,−5,0,6,12 accept 12, 6, 0, −5,−6	
(b)	0.078,0.708, 0.78,0.87	B1	for 0.078, 0.708, 0.78, 0.87 accept 0.87, 0.78, 0.708, 0.078	Accept any additional '0's at the end of a decimal, eg 0.780 or 0.870
3	$\frac{20}{100}$	B1	$\frac{20}{100}$ oe, eg $\frac{2}{10}$ or $\frac{1}{5}$	Ignore any incorrect simplification of $\frac{20}{100}$ oe and award the mark if $\frac{20}{100}$ oe is seen
4	$\frac{3}{9}$	B1	for $\frac{3}{9}$ accept $\frac{1}{3}$	
5	14	B1	cao	
6 (a)	$12t$	B1	$12t$	Accept $t12$ but **not** $12 \times t$ or $t \times 12$
(b)	$7a$	B1	$7a$	Accept $a7$ or $7 \times a$ or $a \times 7$ Partial simplification of $5a + 2a$ or $8a - a$ does NOT get the mark

PMT

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
7 (a)	D	B1	cao	
(b)	B	B1	cao	
(c)	Shown	M1	for number of green counters, eg $12 - (3+1+2) = 6$ **OR** for $\frac{3}{12}$ oe **or** $\frac{1}{12}$ oe **or** $\frac{2}{12}$ oe linked to the appropriate colour	This is awarded for a correct first step
		M1	for $1 - (\text{"}\frac{3}{12}\text{"} + \text{"}\frac{1}{12}\text{"})$ $(= \frac{8}{12})$ or "$\frac{2}{12}$"+ $\frac{\text{"6"}}{12}$ $(= \frac{8}{12})$ **OR** for method to find $\frac{2}{3}$ of 12, eg. $12 \div 3 \times 2$ $(= 8)$	This is awarded for a fully correct method from which the correct answer of $\frac{2}{3}$ can be found Sight of $\frac{8}{12}$ gets M2
		C1	for correct conclusion supported by accurate figures, eg $\frac{8}{12} = \frac{2}{3}$ **or** $\frac{2}{3}$ of 12 = 8 **and** number of yellow + green = 2 + 6 = 8	
8	36	M1	for method to find cost of 1 kg, eg $54 \div 3$ $(= 18)$ or $54 \div 3 \times 2$ oe	
		A1	cao	
9 (a)	Radius	B1	cao	Accept spelling mistakes
(b)	Tangent	B1	cao	Accept spelling mistakes

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Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
10	535	P1	for a start to the process eg 1280+640+220 (=2140) **or** 1280÷4 (=320) **or** 640÷4 (=160) **or** 220÷4 (=55)	
		P1	for a full process to find cost per adult eg "2140" ÷ 4 **or** "320" + "160" + "55"	Can have arithmetical error as long as the complete processes, in the correct order, are present.
		A1	cao SC: B1 for answer of 1495 if P0 scored	
11 (a)	Example	C1	for a correct example, eg 3 × 4 = 12 or 12 ÷ 3 = 4 **or** a statement eg '3 is a factor of 12' or '1 is a factor of every number'	This may be seen, for example, in a factor tree or in a list of factors, but there must be no incorrect factors on the tree or in the list
(b)	Example	C1	for an example, eg 23 **or** a statement eg. 'the tens digit may be even' or 'the last digit only needs to be odd'	

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Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12 (a)	100	B1	for answer in the range 95 to 100	
(b)	660	M1	for reading at least 3 of the required figures from the graph eg 3 of "100", 260, 120, 340, 160, 440 **OR** for 260 – "100" (= 160) **or** 340 – 120 (= 220) **or** 440 – 160 (= 280) **OR** for"100" + 60 (= 160) **or** 80 + 100 + 40 (= 220) **or** 40 + 100 + 100 + 40 (= 280)	Figures may be seen on graph
		M1	(dep) for adding their 3 differences eg "160" + "220" + "280"	
		A1	for 660 or ft their answer to part (a)	
(c)	Tablets	B1	Tablets	
	and statement	C1	Statement eg the bars get proportionally longer over time (most in 2017 and least in 2015) **or** they (more than) double each year **or** for an increase of 280 **or** numbers range from 60 to 340	Values quoted for tablets must be correct. Ignore any calculations relating to laptops and/or desktop computers whether correct or not. Award previous mark if "tablets" is not specifically stated but can be implied from statement.
(d)	Statement (supported)	C1	for statement, eg (No because) we do not know costs or prices or profit.	Answer of 'Yes' gets C0 Answer of 'No' without justification gets C0

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Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13	3	P1	for a start to the process eg 240 − (2 × 45) (= 150) oe **or** (2 × 45) + 40 (= 130) oe	
		P1	for complete process eg "150" ÷ 40 (= 3.75) – can be implied by 40 + 40 + 40 = 120 **or** "130" + 40 + 40 (= 210)	Considering just one piece of 45 cm is not a misread but (240 – 45) ÷ 40 (= 4.875) oe should be awarded P1 only
		A1	cao	
14	Isabel (supported)	P1	for process to work with $\frac{3}{4}$ eg $1-\frac{3}{4}$ $(=\frac{1}{4})$ oe, eg 25% or $\frac{25}{100}$ **or** $\frac{3}{4}$ = 75% or $\frac{75}{100}$ **or** value of salary (say 1000) × 3 ÷ 4 (= 750)	
		P1	for process to work with ratio 3 : 7 eg $\frac{3}{3+7}$ oe **or** $\frac{7}{3+7}$ oe **or** value of salary (say 1000) ÷ (3+7) (= 100)	
		A1	for (28(%)), 25(%) and 30(%) **or** 72(%), 75(%), 70(%) **or** 0.28, 0.25, 0.3 **or** for using value of salary (say 1000) giving 280, 250, 300 **or** 720, 750, 700	
		C1	(dep P2) for Isabel or ft their comparative values	"Isabel" alone without supported evidence, gets 0 marks.

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Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15	24	M1	for method to find 15% of 160, eg 160 $\times \frac{15}{100}$ oe (= 24) **or** 10% = 160 ÷ 10 (= 16) plus 5% = "16" ÷ 2 (= 8) (= 24)	When using partitioning methods, the method to find individual %s must be clear including the need to show an intention to sum eg. 10% = 16 + 5%=8
		A1	cao SC B1 for answer of 136 or 184 if M0 scored	
16 (a)	14	M1	for 4 × 5 and 3 × −2, the substitution may be seen in two separate calculations, eg 4 × 5 (= 20) and 3 × −2 (= −6)	
		A1	cao	
(b)	$4e^2 + 8e$	B2	for $4e^2 + 8e$	
		(B1	for $4e^2$ or $8e$)	Note: $4e^2 + 8e = 12e^3$ for example gets B1 only
(c)	11	M1	for a correct first step eg 3 × m – 3 × 4 = 21 oe **or** m – 4 = 21 ÷ 3 (= 7) oe	Showing ÷3 by each side of equation is sufficient
		A1	cao	
17	1 : 3	M1	for $\frac{1}{4} : \frac{3}{4}$ oe **OR** for any correct un-simplified ratio, eg 25 : 75	
		A1	cao SC: B1 for an answer of 3 : 1 or 1 : $\frac{1}{3}$ if M0 scored	Ignore 'units' such as 1 nuts : 3 no nuts 1 : 3n gets M1A0

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
18 (a)	15, 17, 19, 20, 21, 23, 25	M1	for listing either set eg 15,20,25 **or** 15,17,19,21,23,25 with no incorrect numbers	The 'lists' may be seen in a Venn Diagram or in the working space in part (b) provided they are not contradicted by incorrect lists in part (a)
		A1	15,17,19,20,21,23 and 25 with no repeats	If repeats (but no incorrect numbers) award M1 only.
(b)	Statement or 15 and 25	C1	eg odd multiples of 5 (between 14 and 26) oe NB Could be a general description, eg numbers that are in both (A and B), **or** 15 and 25 (ft from their sets A and B in part (a)) **or** numbers ending in 5 (between 14 and 26)	
19 (a)	$\frac{95}{28}$	M1	for a method to add using common denominators with at least one fraction correct (matching numerator with common denominator) eg $\frac{60}{28}+\frac{35}{28}$ **or** $(2)\frac{4}{28}+(1)\frac{7}{28}$	Use of decimals gets no credit unless it leads to a correct fraction
		A1	$\frac{95}{28}$ oe eg $3\frac{11}{28}$	
(b)	$1\frac{3}{5}$	M1	for $\frac{6}{5}\times\frac{4}{3}$ **or** $\frac{24}{20}\div\frac{15}{20}$ **or** $\frac{8}{5}$ oe eg $1\frac{9}{15}$	Use of decimals gets no credit unless it leads to a correct fraction
		A1	cao	

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Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
20	140	P1 P1 A1	for beginning to solve the problem eg 50 ÷ 5 × 8 (= 80) **or** 14 : 8 : 5 oe **or** 14 : 8 and 8 : 5 oe (linked) for a full process to solve the problem eg "80" ÷ 4 × 7 **or** $\frac{50}{5}$ × "14" **or** 140 : 80 : 50 cao	80 may be seen in the ratio 80 : 50 If 140 clearly identified as houses in working award full marks
21	30	P1 P1 P1 A1	for full process to find the number of bags sold eg 5 × 1000 ÷ 250 (= 20) **OR** for process to find selling price of 1 kg of sweets eg 0.65 × 4 (= 2.60) for [number of bags] × 0.65 **or** "20" × 0.65 (= 13) **or** "2.60" × 5 (= 13) **OR** for 10 ÷ "20" oe (= 0.50) **OR** for 0.65 × 4 (= 2.60) **and** 10 ÷ 5 (= 2) (dep on previous P1) for a process to find the percentage profit eg ("13" – 10) ÷ 10 × 100 **or** (0.65 – "0.50") ÷ "0.50" × 100 **or** ("2.60" – "2") ÷ "2" × 100 **OR** "13" ÷ 10 ×100 (= 130) oe cao	This could be by repeated addition Calculations can be in £ or pence [number of bags] can only come from 5 × 10 ÷ 250 (= 0.2) or 5 × 100 ÷ 250 (= 2) or 5 ÷ 250 (= 0.02) 3/10 or 0.3 is not enough but should be awarded 2 marks Award P3 for 130(%)

PMT

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
22 (a)	Estimated value	P1	for using a rounded value in a correct process eg 3000 ÷ 15 **or** 15 × 8 **or** 20 × 8	Their rounded value must be used in a calculation Rounding may appear after a correct process eg 15.12 × 8 = 120.96 ≈ 100 followed by eg 3069.25 ÷ 100
		P1	for a full process to find the number of days eg "3000" ÷ "15" ÷ "10" (= 20) **or** "3000" ÷ "15" ÷ 8 (= 25)	Accept 3069.25 ÷ 15.12 ÷ 8 oe
		A1	for a correct answer following through their rounded values	
(b)	Explanation	C1	eg less days required **or** it doesn't affect the answer because I would still round 16.27 down to 15 (or up to 20)	Refers to time taken

PMT

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
23 (a)	isosceles triangle, base 6 cm, height 4 cm	M1	for drawing an isosceles triangle **or** for drawing a triangle of base 6cm and height 4cm	Accept a freehand drawing Only a single triangle is acceptable; do **not** accept any attempted nets or 3-D diagrams
		A1	for a fully correct diagram	Condone a perpendicular drawn from base to vertex
(b)	96 cm^2	M1	for a method to find the area of a triangular face eg ½ × 6 × 5 (= 15)	
		M1	(dep) for finding the total surface area eg 4 × "15" + 6 × 6	
		A1	for a numerical answer of 96 SC B1 for an answer of 84 if M0 scored	Ignore incorrect or absent units for this mark [The SC is from: 4 × ½ × 6 × 4 + 6 × 6]
		B1	cm^2	Ignore incorrect or absent numerical answer for this mark

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Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
24	(22, 20)	P1	for process to find width or height of diagram eg 38 − 6 (= 32) **or** 36 – 7 (= 29)	Figures may be shown on the diagram
		P1	for process to find length of side of square eg "32" ÷ 4 (= 8) **or** process to find half width of diagram eg "32" ÷ 2 (= 16)	
		P1	for process to find x coordinate eg 6 + 2 × "8" (= 22) **or** 6 + "16" (= 22) **or** (6 + 38) ÷ 2 (= 22)	If (6 + 38) ÷ 2 leads to an answer other than 22, award P2 only
		P1	for process to find y coordinate eg 36 – 2 × "8" (= 20) **or** 36 – "16" (= 20) **or** 7 + 8 + "29"– 3 × "8" (= 20)	
		A1	cao SC: award 4 marks for (20, 22)	Award for P3 for (22, y) or (x, 20) or x = 22 or y = 20

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Paper: 1MA1/1F

Question	Answer	Mark	Mark scheme	Additional guidance
25	Line drawn	B3 (B2 (B1	for a correct line between $x = -3$ and $x = 3$ for a correct straight-line segment through at least 3 of $(-3, 13)$, $(-2, 9)$, $(-1, 5)$, $(0, 1)$, $(1, -3)$, $(2, -7)$, $(3, -11)$ **or** for all of these points plotted but not joined **or** for a line drawn with a negative gradient through (0, 1) **and** clear intention to use a gradient of −4, eg line through (0,1) and (0.5, −1) for at least 2 correct points stated or plotted **or** for a line drawn with a negative gradient through (0, 1) **or** a line with gradient −4)	Ignore any incorrect points Table of values x: −3, −2, −1, 0, 1, 2, 3 y: 13, 9, 5, 1, −3, −7, −11 Ignore any incorrect points coordinates may be in a table or in working
26	$\begin{pmatrix} 9 \\ 11 \end{pmatrix}$	M1 A1	for $\binom{2\times5}{2\times2}$ [= $\binom{10}{4}$] or $2 \times 5 - 1$ (= 9) or $2 \times 2 + 7$ (= 11) cao	

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: ±5°
Measurements of length: ±5 mm

Paper: 1MA1/1F			
Question		**Modification**	**Mark scheme notes**
2	(a)	Wording ‘five’ added	Standard mark scheme
2	(b)	Wording ‘four’ added	Standard mark scheme
6	(b)	Change to *n*	Standard mark scheme but *a* changed to *n*
7		Probability scale enlarged and crosses changed to solid circles; Lines at zero, a half and 1 lengthened	Standard mark scheme
9	(a)	Diagram enlarged. Wording added ‘It shows a circle.’ Deleted wording ‘cross (x).’ replaced with ‘solid dot.’ Cross changed to solid dot.	Standard mark scheme
9	(b)	Diagram enlarged	Standard mark scheme

PMT

Paper: 1MA1/1F			
Question		**Modification**	**Mark scheme notes**
12		Diagram enlarged. Right axis labelled. Key moved above and to the left of the diagram. Vertical axis label moved above the vertical axis. Shading changed. Intermediates added on both the horizontal and vertical axes. Graph lines changed as follows: 2015 – Laptops changed from 260 to 250; Tablets changed from 260 to 250 and 320 to 300. 2016 – Desktops changed from 120 to 100; Laptops changed from 120 to 100 and 340 to 350. 2017 - Desktops changed from 160 to 150; Laptops changed from 160 to 150 and 440 to 450 Tablets changed from 440 to 450 and 780 to 800	(a) Standard mark scheme (b) M1 for reading at least 3 of the required figures from the graph eg. 3 of 100, 250, 100, 350, 150 or 450 or finding 2 differences from 250 – 100 (= 150), 350 – 100 (= 250), 450 – 150 (= 300) M1 (dep) for complete method shown eg 150 + 250 + 300 A1 cao for 700

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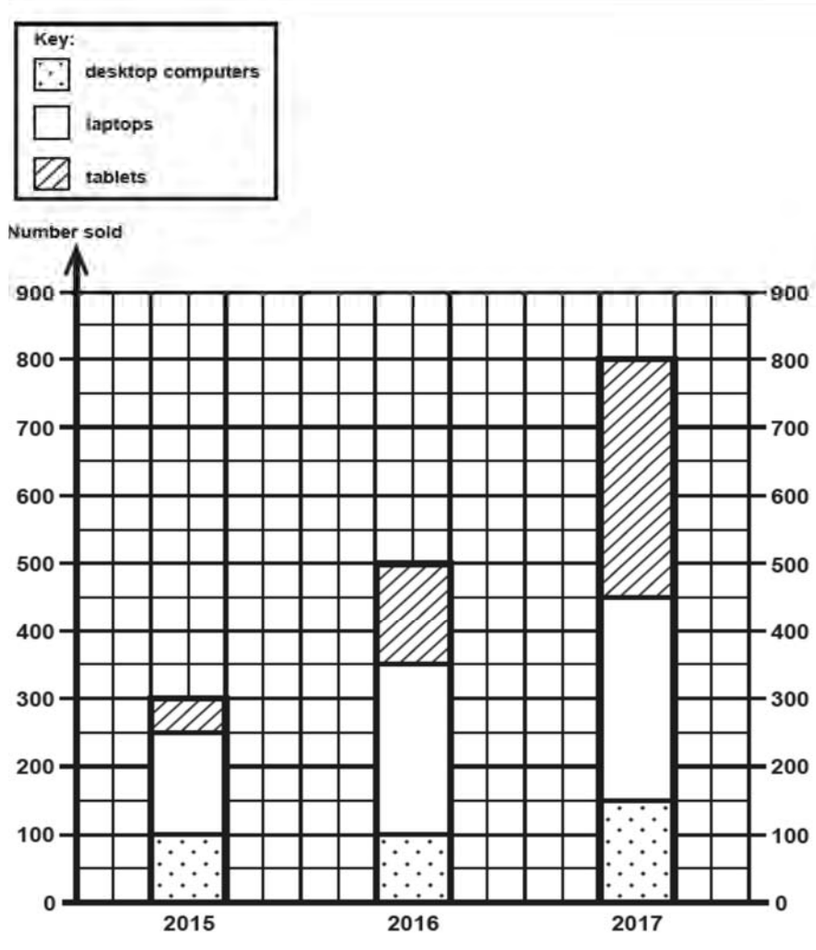
Paper: 1MA1/1F			
Question		**Modification**	**Mark scheme notes**
12 cont.			

PMT

Paper: 1MA1/1F			
Question		**Modification**	**Mark scheme notes**
16	(a)	MLP only: *x* and *y* changed to *s* and *t*.	Standard mark scheme, except for MLP in the mark scheme read *s* for *x*, and *t* for *y*.
16	(b)	Braille only: e changed to q.	Standard mark scheme, except for Braille in the mark scheme read *q* for *e*
23	(a)	Model and a diagram provided. Diagram enlarged. Dashed lines made longer and thicker. Dotted lines made more obvious. Question reversed: Four different options of the front view of the pyramid have been provided. The pyramid has been put on page one for question 23(a) and the four shapes labelled A to D have been put on page two for question 23(a). Question changed to 'Look at the model or at the diagrams for Question 23(a) in the Diagram Book. They are shown on two pages in the Diagram Book. Page one shows a solid square-based pyramid, VABCD. The base of the pyramid is a square of side 6 cm. The height of the pyramid is 4 cm. M is the midpoint of BC and VM = 5 cm. Page two for Question 23 shows four shapes, labelled A, B, C and D. Each square represents a one centimetre square. Which shape shows the accurate front elevation of the pyramid from the direction of the arrow?'	Award 1 mark for an answer of D Award 2 marks for an answer of C NB: Accept any other unambiguous indication of the answer such the diagram indicated by circling etc.

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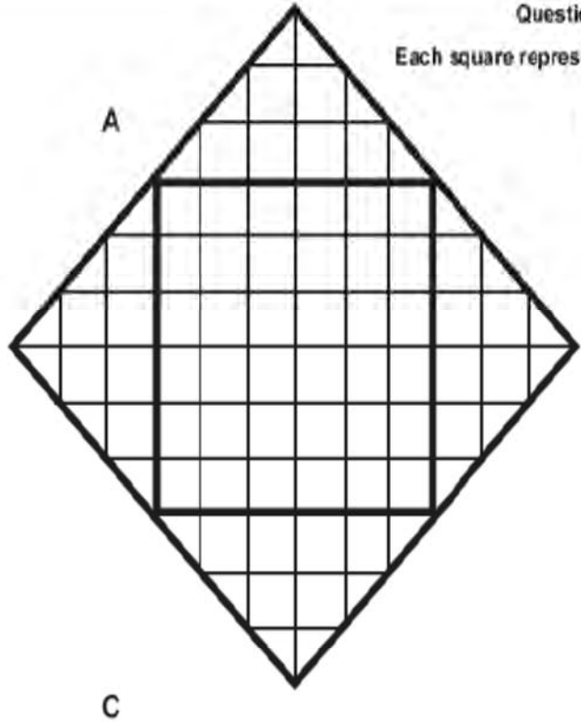
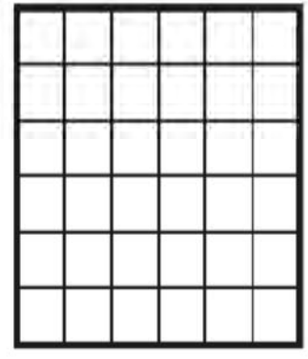
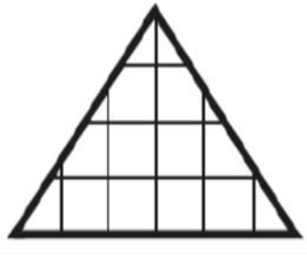
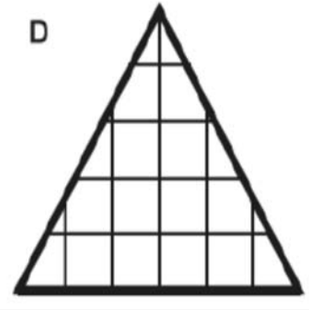
Paper: 1MA1/1F			
Question		**Modification**	**Mark scheme notes**
23 cont.		Question 23 – page two Each square represents a one centimetre square. A  B  C  D 	

PMT

Paper: 1MA1/1F			
Question		**Modification**	**Mark scheme notes**
24		Diagram enlarged. Crosses changed to solid dots. Wording changed to 'It shows a pattern made from four identical squares.'	Standard mark scheme
25		Diagram enlarged. Y axis has been cut to go from -14 to 14.	Standard mark scheme

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Question 16

Overall, students performed well with the expansion in part (a). However, a small number of students tried to simplify their correct answer of $10m - 15$, commonly giving $15m$ and therefore losing the mark. Another common mistake was to only multiply the first term by 5, giving $10m - 3$ or $5 \times 2m - 3$ but full processing was required. Equally, some students thought the expression was an equation which they tried to solve.

Part(b) was generally answered quite well with many students gaining the mark. In general, most students either got the correct answer or did not attempt the question. Common mistakes included $3(n + 12)$, $3n + 4$ and $n + 4$.

Question 22

Most students were able to gain at least one mark in part (a), normally for 3 of their 4 terms correct. It was very common to see $2x$ in place of x^2 or to have the constant term incorrect. Many students who did gain one mark were unable to gain the full marks as they often over simplified their expression by combining non-like terms.

Part (b) was testing students ability to factorise into a single bracket. One mark could be awarded for a correct partial factorisation, removing either the factor of 3 or x correctly from the expression. The first mark could also be awarded if one of the correct factors, $3x$ or $(3x + 2)$, was found. Another frequently seen incorrect response was an attempt to factorise into two brackets due to the $9x^2$.

A small proportion of students correctly factorised the expression and checked that the expansion would lead them to the original expression but then wrote the original expression on the answer line rather than the factorisation.

Question 19

Algebraic manipulation is not a strong point for many Foundation students however it was pleasing to see many correct expressions in both parts (a) and (b). $x^2 - 4$ and $4x$ were common incorrect answers in (a) whilst in (b) the inability to factorise led to a multitude of incorrect offerings.

In part (c), many used non-algebraic methods to correctly solve the given equation by showing that the value for the bracket needed to be 4 with $28 \div 7 = 4$ and $9 - 5 = 4$ often seen. In some cases incorrect answers of, for example, 4 were written on the answer line. The most common errors in this part were either adding 5 to 28 or subtracting 7 from 28. Failure to multiply both terms in the brackets giving something like $7f - 5 = 28$ was a common first step.

Question 15

The first two parts of this question were not answered well. $2ad$ or $2a + d$ were common incorrect answers in part (a), whilst in part (b) very few demonstrated any understanding of factorisation. y and y^2 were often incorrect answers offered here.

Students had greater success with part (c), gaining full marks for an answer of 11. Many students showed the value of x as 11 in their working but then gave an answer of 44 on the answer line. Very few students used algebra explicitly in the question and many took the wrong first step by subtracting instead of adding 7.

Question 17

In part (a) many students correctly expanded the first part of the bracket to get y^2 but did not then multiply y by 5 to obtain $5y$.

Part (b) was less well answered. An incorrect factor of 4 was commonly seen outside the bracket.

In part (c) more students found success. It was pleasing to see the layout of the process to solve the equation clearly structured. Some students were more confident at expanding brackets than at solving equation algebraically, though some who expanded incorrectly were able to access the mark for rearranging their equation ready for solution. Unsuccessful efforts included those who tried a trial and improvement approach of substituting a variety of numbers into the equation.

Responses to part (d) were varied. Some secured full marks, but rarely. Most commonly students processed the numerical term but then multiplied the indices. Some failed to recognise that the lone e or f had an index of 1. Those who correctly remembered the rules of indices frequently wrote $9e^3f^4$

Question 21

Part (a) of this question was not well answered with students displaying many misconceptions concerning powers. Many students added the powers instead of multiplying them or simply wrote $15x$ as the answer. Other common incorrect responses were 15, x^{-2} and 243.

Part (b) was well answered by students, with the vast majority scoring at least one mark and many scoring both the available marks. Those who were unable to reach the correct simplified answer of $40 - 10x$ were usually able to multiply the first bracket to obtain $4x + 12$. The order of the terms in the second bracket seemed to confuse some students and the negative $14x$ caused confusion with students not confident with negative numbers failing to simplify this to $-10x$. Students scored better when they fully expanded both brackets and then collected like terms together. An incorrect answer of $40 + 10x$ was common to see. Students would benefit from more exposure to questions with negative terms and questions where the x term is in different positions within the brackets given.

Students found the third part of this question challenging. With many displaying little understanding of extracting a common factor and just giving an answer with just one term. Some students did gain 1 mark for a partial factorisation often extracting 3 or $3x$. A common error seen was to assume that two brackets were needed and this approach obviously led to incorrect answers.

Students would benefit from understanding the meaning of 'factorise fully' as opposed to just extracting a single factor and also from being taught to look at their factorised expression and ensure it had no further common factors and that it multiples out to the original expression.

Question 17

Part (a) was generally well answered. Some students only partially processed the answer leaving it as $12 + -\ 6x$. Others went on from the correct $12 - 6x$ to write $6x$ on the answer line, this scored no marks since it is the answer on the answer line which must be accepted.

In part (b) the vast majority of students made some attempt. For those students who were successful their answers mainly came from an informal method of inverse operations, usually showing $12 \times 4 \div 3 = 16$ with a few using the formal approach of $3y = 48$. Another alternative method was to see $0.75y = 12$ as the first step. Students scoring one mark mainly got this for $3y = 48$ or an embedded answer of 16, usually shown as $3 \times 16 \div 4 = 12$; unfortunately, many then wrote the 12 on the answer line rather than the 16. Students who knew to multiply by 4 as the first step often failed to apply this to both sides of the equation and only stated the 48, which resulted in no marks since they wrote $4 \times 12 = 48$ rather than $3y = 48$. Students scoring zero were usually unsure of how to approach the first step and would try to add or subtract 4 rather than multiplying.

In part (c) students with understanding of factorisation in algebra did well. The most popular incorrect answer was $10p$ where students simply added $4p$ and 6 together without appreciating that these were unlike terms.

Question 20

In parts (a) and (b), most candidates had learnt and understood the index laws and were able to apply these and arrive at the correct solutions. The common misconceptions of adding for part (a) or multiplying for part (b) were observed. It was also common to see variations of these with multiple variable terms such as $2m$ or $2x$ followed by an index.
In part (c) candidates that were able to multiply out the brackets and arrive at one correct term were rewarded with a method mark. Singular mistakes or responses that were spoiled by adding the two terms together gained no further credit. However, those that were able to multiply correctly through both terms and state these two terms secured the accuracy mark. No credit was given for simply multiplying by '4'.

Question 27

For part (a) there were many good attempts to expand the brackets but these attempts rarely resulted in credit being awarded. Common errors included $6x$ or $5x$ instead of $6x^2$ and incorrect signs being used. Those students using the grid method to expand the quadratic were usually successful at gaining at least 1 mark. In part (b) a small number of students were able to give a correct factorisation. Some students who gained B0 were able to give a pair of brackets with the product of the constants being -16, such as $(x + 2)(x - 8)$.

Summary

Based on the performance on this paper, students/centres should work on:

- measuring angles accurately.
- improving numeracy skills, including division skills for integers and decimals, multiplication skills for decimals.
- the interpretation of problems involving ratio.
- the formation of algebraic equations and solving them along with subsequent substitution to apply to problems in context.
- drawing a straight line graph by correctly calculating a table of values.
- using equilateral, isosceles and right-angled triangles to solve angle questions.
- encouraging students to show a full method for percentage calculation, noting that before method marks can be awarded a full explanation of each step has to be shown. If the answer is just stated then process marks will be lost if there are any arithmetic errors.
- encouraging students to set out their working using logical steps.
- encouraging students to read the question carefully so that they understand what they are required to do and what format the answer should be stated in.
- encouraging students to use approximations to check if their answers are sensible.
- encouraging students to set their work out in an orderly fashion.
- improving the expertise and accuracy required in geometric constructions.

and

- in questions requiring finding the prime factors of a number, encourage a more structured approach of dividing the number by the smallest prime numbers successively until the result was a prime number.
- ensure students know common metric equivalents from the specification, from one unit to another.
- practise arithmetic processes involving negative numbers.

Question 22

Success in expanding and simplifying an expression in part (a) varied considerably. Many fully correct answers were seen, and of those not gaining full marks, a mark was often awarded for either expanding one bracket correctly or collecting like terms for one variable, often y, correctly. Many expanded the brackets correctly but then did not know how to simplify either ignoring the signs or adding all terms together to give a single term as an answer. The importance of adding / subtracting negative numbers correctly in algebra questions appears to be challenging for Foundation tier students. A small number of students confused this type of expansion with multiplying 2 brackets resulting in having a term in y^2 but this was less common than in previous similar style questions.

Part (b) was answered with moderate success with a pleasing number of students able to factorise the terms to identify the HCF of $3x$ in order to obtain their answer of $3x(2x+5)$. However, a large number of students appear to not know what the word 'factorise' means; with several students trying to add the terms together or attempting to solve and find a value for x. There were a few students who knew what factorising meant, but due to the x squared term, thought this was a two bracket factorisation and subsequently failed to achieve any marks.

Rearranging a formula proved to be challenging for the majority, with very few students being able to rearrange fully or partially. The most common errors included simply transposing the f and g in the original equation or stating the correct process but failing to apply this correctly to one or both sides, eg stating -11 and/or $\div 3$ but not applying this to both sides of the equals sign.

Question 21

In part (a), B1 was awarded for an answer of y^8. Common incorrect responses included y^5 and y^{12}.
In part (b), B1 was awarded for an answer of e^6. Common incorrect responses included e^5 and 6.
In part (c), B1 was awarded for an answer of $3x^3 + 5x$. Common errors included incorrect terms such as $3x^2 + 5x$ or $3x^3 + 5$, or reaching a correct expansion but then continuing with incorrect algebra, for example $3x^3 + 5x = 8x^4$. As per general marking guidance point 7, such contradictions resulted in 0 marks.
In part (d), 2 marks were awarded for a correct answer of $n^2 + 3n - 10$. Where full marks were not awarded, 1 mark could be gained for either three out of four correct terms with correct signs,

or four correct terms ignoring signs. Both approaches were commonly seen. Frequent errors included sign mistakes, expanding to get $2n$ instead of n^2, or 3 instead of -10. It was also common to see $-2n + 5n$ simplified incorrectly as $7n$ or $-7n$, indicating difficulty with addition and subtraction involving negative numbers. Some responses included only two terms, such as $n^2 - 10$ or $5n - 2n$, which gained 0 marks. There were also responses that showed limited understanding of how to expand and simplify two brackets.