Chhetri Academy

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GCSE MATHS

Algebra

Edexcel 1MA1 | Subtopic collection Topic 17

Linear equations

Foundation tier

Past paper question booklet

139	2011-2025	Foundation
question groups	available papers	tier

Before you begin

1. Show working and use units where appropriate.
2. Use extra paper if you need more space.
3. Print at actual size (100%) for measurement questions.

Name _____ **Date** _____

Whole questions are retained for context; some parts cover other points. Legacy sources are labelled.

13 Jake plays a game of throwing a ball at a target.

The table shows information about the probability of each possible score.

Score	0	1	2	3	4	5
Probability	0.09	x	0.18	0.16	0.21	0.30

Work out the value of x.

.....

(Total for Question 13 is 2 marks)

5

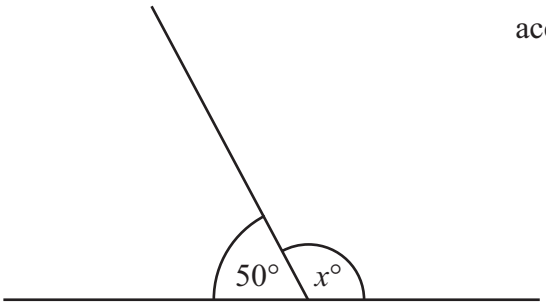


Diagram **NOT** accurately drawn

(i) Work out the value of x.

$x =$ .....

(ii) Give a reason for your answer.

.....

.....

(Total for Question 5 is 2 marks)

7

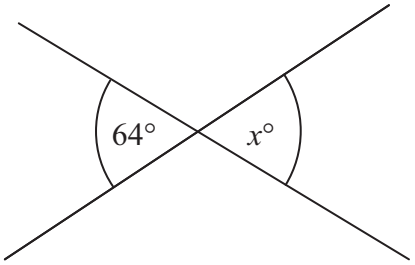


Diagram **NOT** accurately drawn

(i) Find the value of x.

$x =$ .....

(ii) Give a reason for your answer.

.....

.....

(Total for Question 7 is 2 marks)

15 The table shows the minimum distance and the maximum distance people should sit from different sized TV screens when watching TV.

TV screen size (inches)	Minimum distance (feet)	Maximum distance (feet)
28	3.5	7
30	3.75	7.5
32	4	8
36	4.5	9
38	4.75	9.5
40	5	10
42	5.25	10.5

James has a TV with a screen size of 32 inches.
He is going to watch his TV.

(a) What is the minimum distance James should sit from the screen?

..... feet
(1)

Sheraz has a TV with a screen size of 38 inches.
He is going to watch his TV.

(b) Work out the difference between the minimum distance and the maximum distance Sheraz should sit from the screen.

..... feet
(2)

You can use this rule to work out the maximum distance to sit from a TV screen.

Maximum distance in feet = screen size in inches ÷ 4

Clare has a TV with a screen size of 24 inches.
She is going to watch her TV.

(c) Use the rule to work out the maximum distance Clare should sit from the screen.

..... feet
(1)

Richard should sit a maximum distance of 12 feet from his screen.

(d) Work out the screen size of Richard's TV.

..... inches
(2)

(Total for Question 15 is 6 marks)

27

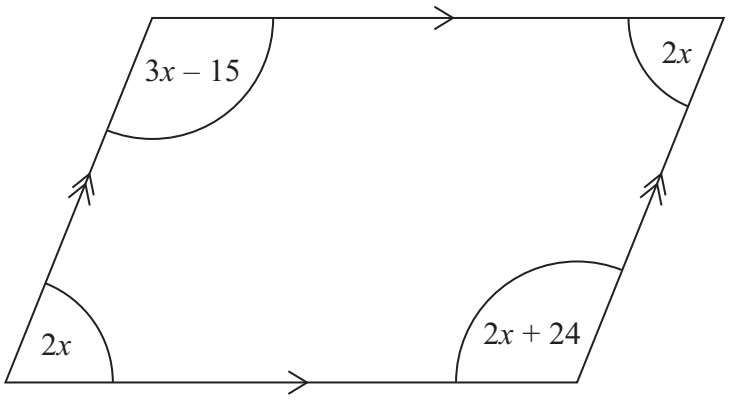


Diagram **NOT** accurately drawn

The diagram shows a parallelogram.
The sizes of the angles, in degrees, are

$2x$
$3x - 15$
$2x$
$2x + 24$

Work out the value of x.

$x =$ .....

(Total for Question 27 is 3 marks)

14 $P = 3.5x - y$

(a) Work out the value of P when $x = 12$ and $y = 5$

.....

(2)

(b) Work out the value of P when $x = -9$ and $y = -6$

.....

(2)

(Total for Question 14 is 4 marks)

19 (a) Solve $b - 7 = 12$

$b =$ .....

(1)

(b) Solve $5e = 40$

$e =$ .....

(1)

(c) Solve $4m + 6 = 15$

$m =$ .....

(2)

(Total for Question 19 is 4 marks)

5 (a) Solve $4x = 20$

$x =$ .....

(1)

(b) Solve $y + 5 = 12$

$y =$ .....

(1)

(Total for Question 5 is 2 marks)

12 Hayley is buying bottles of juice for a children's party.

She uses this rule to work out the number of bottles of juice she needs.

Number of bottles = Number of children ÷ 4 + 5

There will be 24 children at the party.

(a) Work out the number of bottles of juice Hayley needs.

.....

(2)

Hayley needs 13 bottles of juice for a different children's party.
She used the same rule.

(b) Work out the number of children at this party.

.....

(3)

(Total for Question 12 is 5 marks)

17 (a) Solve $y + 5 = 12$

$y =$ .....
(1)

(b) Solve $\frac{x}{4} = 3$

$x =$ .....
(1)

(c) Solve $5w - 6 = 10$

$w =$ .....
(2)

(Total for Question 17 is 4 marks)

***19**

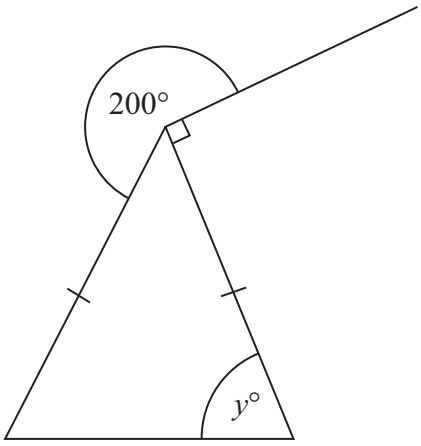


Diagram **NOT** accurately drawn

Work out the value of y.
Give reasons for your answer.

(Total for Question 19 is 4 marks)

10 You can use this rule to work out the total charge for hiring a concrete mixer.

Total charge = £30 plus £8 each day

Esme hired a concrete mixer for 4 days.

(a) Work out the total charge.

£ .....

(2)

William also hired a concrete mixer.

The total charge was £110

(b) Work out how many days William hired the concrete mixer for.

..... days

(3)

(Total for Question 10 is 5 marks)

18 $y = 4x + c$

$x = 7.5$

$c = 5.4$

(a) Work out the value of y.

.....

(2)

$y = 4x + c$

$y = 18.8$

$c = -2.4$

(b) Work out the value of x.

.....

(2)

(Total for Question 18 is 4 marks)

12 $p = 5s - 2t$

$s = 4$
$t = 3$

(a) Work out the value of p.

$p =$ .....
(2)

$y = x^2$
$x = -5$

(b) Work out the value of y.

$y =$ .....
(1)

(Total for Question 12 is 3 marks)

9 This rule can be used to work out the time, in seconds, it takes to download music tracks.

Time = 25 × number of music tracks + 10

(a) Work out the time, in seconds, it takes to download 9 music tracks.

..... seconds
(2)

(b) How many music tracks can be downloaded in 360 seconds?

.....
(3)

(Total for Question 9 is 5 marks)

18 Brian is x years old.
Peter is 4 years older than Brian.
Amy is 2 years younger than Brian.

The total of their ages is 26 years.

Work out the value of x.

.....

(Total for Question 18 is 4 marks)

9 (a) Simplify $a + a + a + a$

.....
(1)

(b) Simplify $3 \times c \times d$

.....
(1)

(c) Simplify $3ef + 5ef - ef$

.....
(1)

(d) Solve $6g = 18$

$g =$ .....
(1)

(e) Solve $5h + 7 = 17$

$h =$ .....
(2)

(Total for Question 9 is 6 marks)

12 (a) Solve $a + a = 18$

$a =$ .....
(1)

(b) Solve $b - 4 = 8$

$b =$ .....
(1)

(c) Solve $7c = 28$

$c =$ .....
(1)

$P = 2x + 3y$
$x = 5$
$y = 4$

(d) Work out the value of P.

$P =$ .....
(2)

(Total for Question 12 is 5 marks)

18

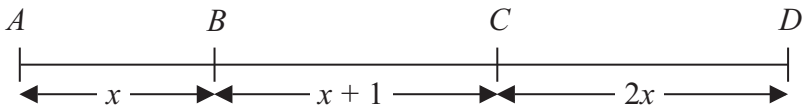


Diagram **NOT** accurately drawn

In the diagram,

$AB = x$ cm
$BC = (x + 1)$ cm
$CD = 2x$ cm

$AD = 19$ cm

(a) Show that $4x + 1 = 19$

(2)

(b) Solve $4x + 1 = 19$

$x =$ .....

(2)

(c) Work out the length of BD.

$BD =$ ..... cm

(2)

(Total for Question 18 is 6 marks)

23 (a) Solve $x + 9 = 19$

.....

(1)

(b) Solve $2y = 17$

.....

(1)

(c) Solve $\frac{w}{4} = 8$

.....

(1)

(d) Expand $3(2 + t)$

.....

(1)

(Total for Question 23 is 4 marks)

28 The diagram shows a garden in the shape of a rectangle.

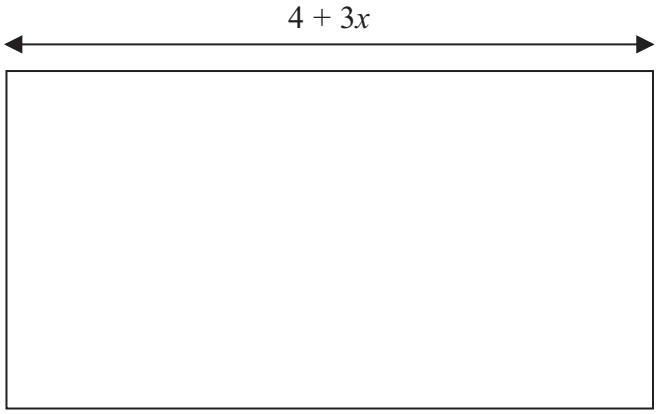


Diagram **NOT** accurately drawn

All measurements are in metres.
The perimeter of the garden is 32 metres.

Work out the value of x

.....

(Total for Question 28 is 4 marks)

8 $a = 4b$

(a) Work out the value of a when $b = 3$

$a =$ .....

(1)

$P = 4d - 3$

(b) Work out the value of P when $d = 2$

$P =$ .....

(2)

(Total for Question 8 is 3 marks)

Question 23

26 Solve $3(x - 2) = x + 7$

$x =$ .....

(Total for Question 26 is 3 marks)

12 (a) Solve $k + 4 = 10$

$k =$ .....
(1)

(b) Solve $m + m + m = 21$

$m =$ .....
(1)

(c) Solve $5p - 4 = 9$

$p =$ .....
(2)

(Total for Question 12 is 4 marks)

20 Dan has some marbles.
Ellie has twice as many marbles as Dan.
Frank has 15 marbles.

Dan, Ellie and Frank have a total of 63 marbles.

How many marbles does Dan have?

.....

(Total for Question 20 is 3 marks)

13 Jessica thinks of a number.

She multiplies the number by 3
She then subtracts 7
Her answer is 5

What number did Jessica think of?

.....

(Total for Question 13 is 2 marks)

19 (a) Solve $\frac{n}{7} = 2$

.....

(1)

(b) Solve $3g + 4 = 19$

.....

(2)

(Total for Question 19 is 3 marks)

23 (a) Solve $e + e + e + e + e = 45$

.....

(1)

(b) Solve $18 - x = 13$

.....

(1)

(c) Solve $2(y - 5) = 24$

.....

(2)

(d) Factorise $15p + 40$

.....

(1)

(Total for Question 23 is 5 marks)

Question 29

4 Jodie thinks of a number.
She then doubles the number and adds 7
The result is 23

What number did Jodie think of ?

.....

(Total for Question 4 is 3 marks)

10 (a) Solve $5x = 45$

$x =$ .....
(1)

(b) Solve $w - 8 = 20$

$w =$ .....
(1)

(c) Solve $\frac{t}{7} = 5$

$t =$ .....
(1)

(d) Solve $4x - 9 = 41$

$x =$ .....
(2)

(Total for Question 10 is 5 marks)

18 $P = 4a + 2b$

Find the value of P when $a = 6$ and $b = 5$

.....

(Total for Question 18 is 2 marks)

23 (a) Work out the value of 3.1^4

.....

(1)

(b) Simplify $(p^3)^2$

.....

(1)

(c) Simplify $\frac{t^8}{t^3}$

.....

(1)

$2^3 \times 2^n = 2^9$

(d) Work out the value of n.

.....

(1)

(Total for Question 23 is 4 marks)

26 (a) Solve $3p + 4 = 6$

.....

(2)

$-5 < y \leqslant 0$

y is an integer.

(b) Write down all the possible values of y.

.....

(2)

(Total for Question 26 is 4 marks)

Question 34

12 $P = n + 2t$

$n = 4$

$t = 5$

Work out the value of P.

$P =$ .....

(Total for Question 12 is 2 marks)

14 (a) Solve $2x = 8$

.....

(1)

(b) Solve $y + 4 = 10$

.....

(1)

(Total for Question 14 is 2 marks)

22 Stephanie is x years old.
Tobi is twice as old as Stephanie.
Ulrika is 3 years younger than Tobi.

The sum of all their ages is 52 years.

(a) Show that $5x - 3 = 52$

(3)

(b) Work out the value of x.

$x =$ .....

(2)

(Total for Question 22 is 5 marks)

8 (a) Solve $x + x + x = 6$

$x =$ .....

(1)

(b) Solve $t + 5 = 20$

$t =$ .....

(1)

(c) Solve $4y = 36$

$y =$ .....

(1)

(d) Solve $\frac{1}{2}f + 5 = 12$

$f =$ .....

(2)

(Total for Question 8 is 5 marks)

11 Stephanie thinks of a positive number.
She squares the number and adds 7
The result is 43

What number did Stephanie think of?

.....

(Total for Question 11 is 3 marks)

24 (a) Factorise $3e^2 + 5e$

.....

(1)

(b) Solve $7(k - 3) = 3k - 5$

$k =$ .....

(3)

(c) Make a the subject of the formula $f = \frac{a + 1}{2}$

.....

(2)

(Total for Question 24 is 6 marks)

12 (a) Solve $x - 5 = 17$

$x =$ .....
(1)

(b) Solve $\frac{m}{3} = 6$

$m =$ .....
(1)

(c) Solve $5y + 7 = 24$

$y =$ .....
(2)

(Total for Question 12 is 4 marks)

13 (a) Solve $x + 3 = 12$

$x =$ .....

(1)

(b) Solve $\frac{y}{5} = 10$

$y =$ .....

(1)

(Total for Question 13 is 2 marks)

19 (a) Solve $8f + 19 = 15$

$f =$ .....

(2)

(b) Solve $2c + 5 = c + 8$

$c =$ .....

(2)

(Total for Question 19 is 4 marks)

6 Ellis thinks of a number.
He multiplies it by 4 and then subtracts 10
The result is 14

What number did Ellis think of?

.....

(Total for Question 6 is 3 marks)

12 (a) Solve $x - 5 = 13$

$x =$ .....

(1)

(b) Solve $2n + n + n = 10$

$n =$ .....

(1)

(c) Solve $\frac{p}{10} = 7$

$p =$ .....

(1)

(d) Solve $5y + 6 = 18$

$y =$ .....

(2)

(Total for Question 12 is 5 marks)

22 Asha and Lucy are selling pencils in a school shop.
They sell boxes of pencils and single pencils.

Asha sells 7 boxes of pencils and 22 single pencils.
Lucy sells 5 boxes of pencils and 2 single pencils.
Asha sells twice as many pencils as Lucy.

Work out how many pencils there are in a box.
You must show all your working.

.....

(Total for Question 22 is 4 marks)

6 A farmer has 37 kg of potatoes.

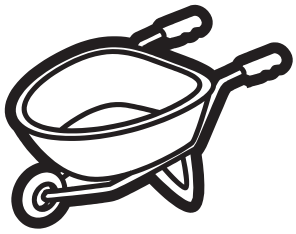
He puts some of the potatoes into a small sack.
He puts the rest of the potatoes into a large sack.

The total weight of the potatoes in the large sack is 13 kg more than the total weight of the potatoes in the small sack.

(a) What is the total weight of the potatoes in the small sack?

..... kg
(2)

There are 30 kg of potatoes in a wheelbarrow.



The farmer puts some carrots into the wheelbarrow.
The total weight of the potatoes and the carrots in the wheelbarrow is 110 pounds.

(b) What weight of carrots did the farmer put into the wheelbarrow?
1 kg = 2.2 pounds

.....
(4)

(Total for Question 6 is 6 marks)

12 You can use this rule to work out the total hire charge, in pounds (£), for hiring a satellite phone.

Total hire charge = number of weeks × 90 + 50

Ismail wants to hire a satellite phone for 4 weeks.

(a) Work out the total hire charge.

£ .....

(2)

Dominik hires a satellite phone.
His total hire charge is £860

(b) For how many weeks did he hire the phone?

..... weeks

(3)

(Total for Question 12 is 5 marks)

13 Here is a rectangle.

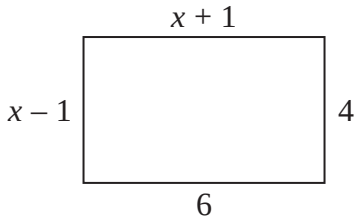


Diagram **NOT** accurately drawn

All measurements on the diagram are in centimetres.

(a) Find the value of x.

.....

(2)

Here is a triangle.

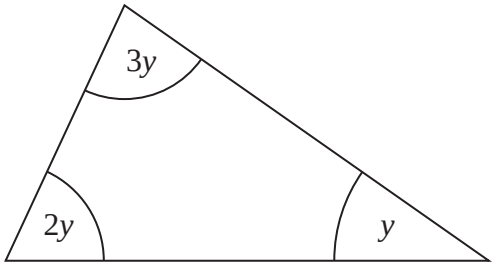


Diagram **NOT** accurately drawn

(b) Find the size of the angle marked y.

.....°

(2)

(Total for Question 13 is 4 marks)

5 (a) Solve $y + 6 = 11$

$y =$ .....

(1)

(b) Solve $5p = 14$

$p =$ .....

(1)

(c) Solve $4x + 3 = 9$

$x =$ .....

(2)

(Total for Question 5 is 4 marks)

Question 50

15 $p = 2e + 3g$

$e = 6.5$
$g = 2$

Work out the value of p.

.....

(Total for Question 15 is 2 marks)

15 (a) Solve $x + x = 20$

$x =$ .....
(1)

(b) Solve $p - 4 = 9$

$p =$ .....
(1)

(c) Solve $3n = 24$

$n =$ .....
(1)

$R = 7x + 4y$
$x = -1$
$y = 3$

(d) Work out the value of R.

$R =$ .....
(2)

(Total for Question 15 is 5 marks)

23 Kumar has three boxes of counters *A*, *B* and *C*.

There are x counters in box *A*.
There are $(2x + 7)$ counters in box *B*.
There are $(3x – 4)$ counters in box *C*.

There is a total of 75 counters in the three boxes.

Work out the number of counters in box *B*.

.....

(Total for Question 23 is 4 marks)

8 (a) Solve $x - 3 = 12$

$x =$ .....

(1)

(b) Solve $5y = 30$

$y =$ .....

(1)

(c) Solve $2w + 7 = 13$

$w =$ .....

(2)

(Total for Question 8 is 4 marks)

21 The diagram shows a rectangle.

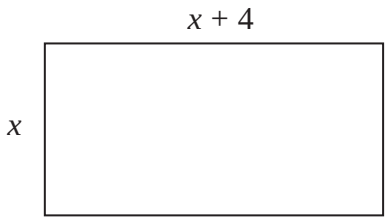


Diagram **NOT** accurately drawn

All measurements are given in centimetres.

The perimeter of the rectangle is 45 cm.

Work out the value of x.

x = ...

(Total for Question 21 is 3 marks)

8 Freya thinks of a number.
She multiplies the number by 2 and then subtracts 10
The result is 50

What number did Freya think of ?

.....

(Total for Question 8 is 3 marks)

9 $p = 3u + \frac{1}{2}t$

$u = -4$

$t = 18$

Work out the value of p.

.....

(Total for Question 9 is 3 marks)

14 (a) Solve $m - 5 = 8$

$m =$ .....
(1)

(b) Solve $7n = 21$

$n =$ .....
(1)

(c) Solve $\frac{t}{4} + 3 = 12$

$t =$ .....
(2)

(Total for Question 14 is 4 marks)

22 *PQR* is an isosceles triangle.

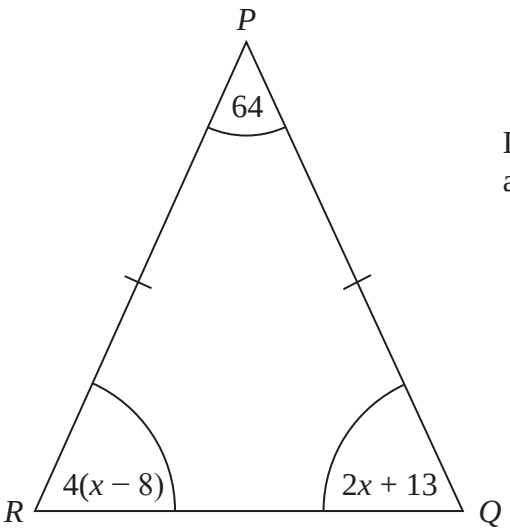


Diagram **NOT** accurately drawn

PQ = *PR*
All the angles are in degrees.

Work out the value of *x*.

x = ...

(Total for Question 22 is 4 marks)

9 (a) Solve $3x = 18$

$x =$ .....

(1)

(b) Solve $y + 7 = 15$

$y =$ .....

(1)

(Total for Question 9 is 2 marks)

27

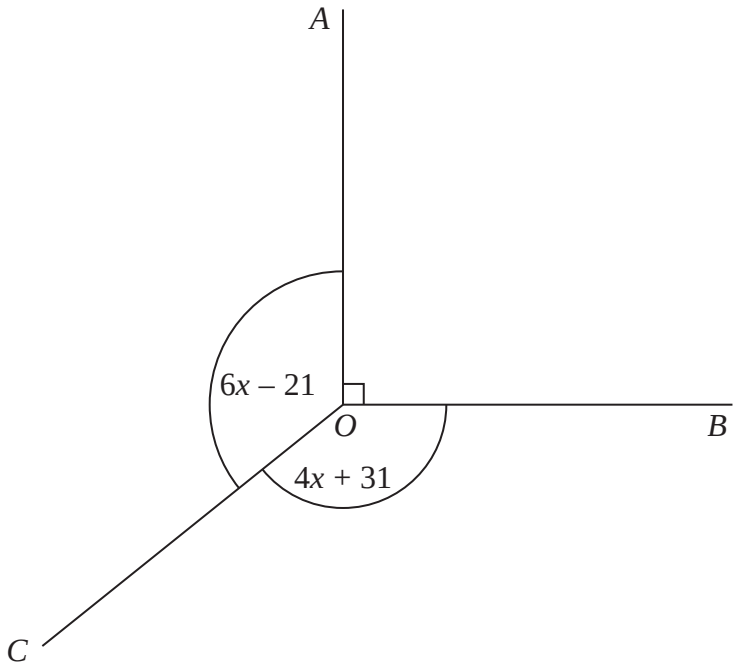


Diagram **NOT** accurately drawn

In the diagram, all angles are in degrees.

Angle *AOB* is a right angle.
Angle *AOC* = Angle *BOC*.

Work out the value of *x*.

.....

(Total for Question 27 is 3 marks)

4 (a) Solve $7x = 42$

$x =$ .....
(1)

(b) Solve $p + 7 = 11$

$p =$ .....
(1)

(c) Solve $17 - g = 11$

$g =$ .....
(1)

(d) Solve $8q - 3 = 23$

$q =$ .....
(2)

(e) $v = u + 5t$
$u = 4$
$t = 3$

Work out the value of v.

$v =$ .....
(2)

(Total for Question 4 is 7 marks)

7 Martin thinks of a number.

He multiplies this number by 3
He then subtracts 5
The result is 22

What number did Martin think of ?

.....

(Total for Question 7 is 3 marks)

19 There are

x stamps in a small packet
$(x + 3)$ stamps in a medium packet
and $(x + 4)$ stamps in a large packet

The total number of stamps in the three packets is N.

(i) Write down an equation for N in terms of x.
Give your equation in its simplest form.

.....

There is a total of 61 stamps.

(ii) Work out the number of stamps in the medium packet.

.....

(Total for Question 19 is 5 marks)

13 $y = 4x - 3t$

$x = 2$
$t = 5$

(a) Work out the value of y.

$y =$ .....
(2)

$y = 4x - 3t$

$y = 30$
$t = 2$

(b) Work out the value of x.

$x =$ .....
(2)

(Total for Question 13 is 4 marks)

Question 65

21 Solve $4(x + 3) = 2x + 8$

$x =$ .....

(Total for Question 21 is 3 marks)

12 (a) Solve $2x = 24$

$x =$ .....

(1)

(b) Solve $\frac{y}{3} = 15$

$y =$ .....

(1)

Hassan thinks of a number.

He multiplies the number by 3
He then adds 12

His answer is 60

(c) What number did Hassan think of?

.....

(2)

(Total for Question 12 is 4 marks)

3 (a) Simplify $7 \times e \times f \times 8$

.....

(1)

(b) Solve $\frac{x}{5} = 2\frac{1}{2}$

$x =$ .....

(1)

(Total for Question 3 is 2 marks)

Question 68

16 $v = u + at$

$u = 1 \qquad a = -3 \qquad t = \frac{1}{2}$

Work out the value of v.

$v =$ .....

(Total for Question 16 is 2 marks)

19 (a) Solve $4(x - 5) = 18$

$x =$ .....

(2)

$-3 < t \leqslant 2$
t is an integer.

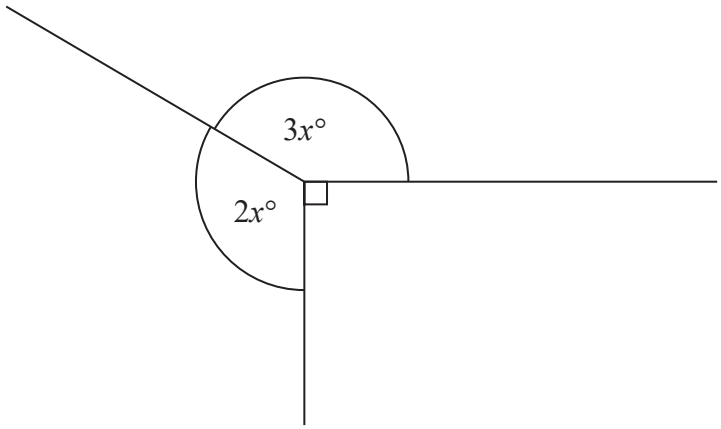
(b) Write down all the possible values of t.

.....

(2)

(Total for Question 19 is 4 marks)

9

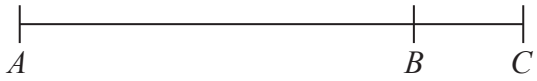


Find the value of x.

.....

(Total for Question 9 is 3 marks)

10 ABC is a straight line.



The length AB is five times the length BC.
$AC = 90$ cm.

Work out the length AB.

.....cm

(Total for Question 10 is 3 marks)

Question 72

11 $T = 4v + 3$

(a) Work out the value of T when $v = 2$

$T =$ .....

(2)

(b) Make v the subject of the formula $T = 4v + 3$

.....

(2)

(Total for Question 11 is 4 marks)

Question 73

November 2017 | 1MA1/1F | Original Q3

3 Solve $\frac{y}{4} = 10.5$

$y =$ .....

(Total for Question 3 is 1 mark)

Question 74

November 2017 | 1MA1/2F | Original Q16

16 Solve $5x - 6 = 3(x - 1)$

$x =$.....

(Total for Question 16 is 3 marks)

21 $p^3 \times p^x = p^9$

(a) Find the value of x.

$x =$ .....

(1)

$(7^2)^y = 7^{10}$

(b) Find the value of y.

$y =$ .....

(1)

$100^a \times 1000^b$ can be written in the form 10^w

(c) Show that $w = 2a + 3b$

(2)

(Total for Question 21 is 4 marks)

Question 76

10 Jim thinks of a number.

$\frac{2}{3}$ of Jim's number is 48

Work out $\frac{5}{6}$ of Jim's number.

.....

(Total for Question 10 is 2 marks)

16 $P = 4x + 3y$

$x = 5$
$y = -2$

(a) Work out the value of P.

.....
(2)

(b) Expand $4e(e + 2)$

.....
(2)

(c) Solve $3(m - 4) = 21$

$m =$ .....
(2)

(Total for Question 16 is 6 marks)

Question 78

11 (a) Solve $x + x + x = 51$

$x =$ .....

(1)

(b) Solve $\frac{y}{4} = 3$

$y =$ .....

(1)

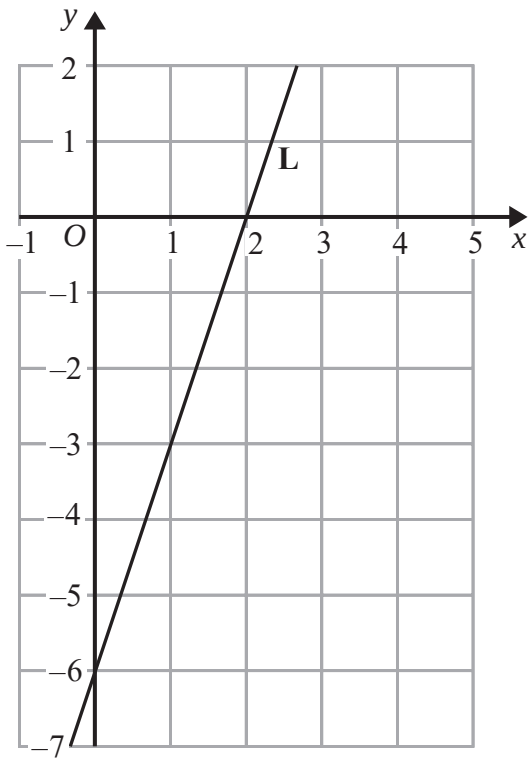
(c) Solve $2f + 7 = 18$

$f =$ .....

(1)

(Total for Question 11 is 3 marks)

22 The line **L** is shown on the grid.



Find an equation for **L**.

.....

(Total for Question 22 is 3 marks)

Question 80

June 2018 | 1MA1/3F | Original Q25

25 Solve $\frac{5-x}{2} = 2x - 7$

$x =$ .....

(Total for Question 25 is 3 marks)

19 (a) Solve $3(x - 4) = 12$

$x =$ .....

(2)

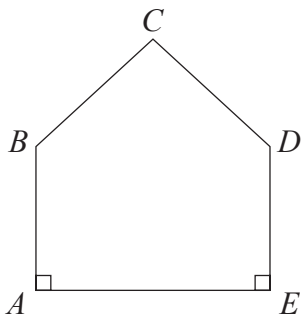
(b) Factorise fully $9b - 3b^2$

.....

(2)

(Total for Question 19 is 4 marks)

17 The diagram shows a pentagon.
The pentagon has one line of symmetry.



$AE = 4x$
$AB = 2x + 1$
$BC = x + 2$

All these measurements are given in centimetres.

The perimeter of the pentagon is 18 cm.

(a) Show that $10x + 6 = 18$

(3)

(b) Find the value of x.

$x =$ .....

(2)

(Total for Question 17 is 5 marks)

10 (a) Solve $t + t + t = 12$

$t =$ .....
(1)

(b) Solve $x - 2 = 6$

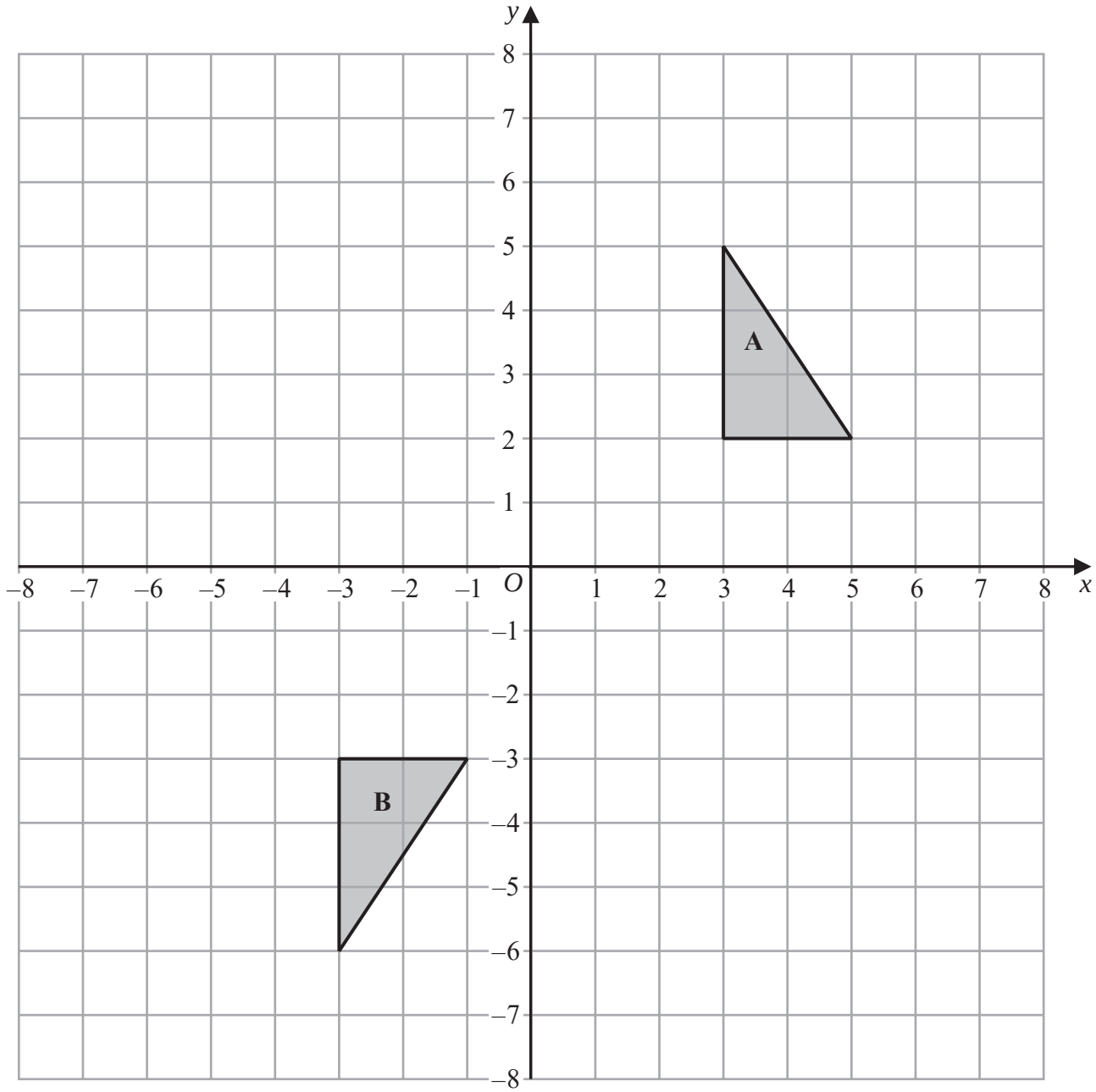
$x =$ .....
(1)

(c) Solve $6w + 2 = 20$

$w =$ .....
(2)

(Total for Question 10 is 4 marks)

26



Shape **A** can be transformed to shape **B** by a reflection in the x-axis followed by a translation $\begin{pmatrix} c \\ d \end{pmatrix}$

Find the value of c and the value of d.

$c =$ .....

$d =$ .....

(Total for Question 26 is 3 marks)

Question 85

11 $P = 7r + 3q$

Work out the value of P when $r = 5$ and $q = -4$

.....

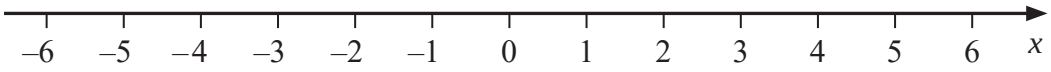
(Total for Question 11 is 2 marks)

20 (a) Solve $14n > 11n + 6$

.....

(2)

(b) On the number line below, show the set of values of x for which $-2 < x + 3 \leqslant 4$



(3)

(Total for Question 20 is 5 marks)

Question 87

25 Sally used her calculator to work out the value of a number y.

The answer on her calculator display began

8.3

Complete the error interval for y.

..... $\leqslant y <$ .....

(Total for Question 25 is 2 marks)

15 You can use this rule to work out the total hire charge, in pounds (£), for hiring a 3D printer for a number of weeks.

Total hire charge (£) = number of weeks × 70 + 50

Mia wants to hire a 3D printer for 4 weeks.

(a) Work out the total hire charge.

£.....

(2)

Zahir hires a 3D printer.
The total hire charge is £680

(b) For how many weeks does Zahir hire the 3D printer?

..... weeks

(2)

(Total for Question 15 is 4 marks)

21 There are 60 people in a choir.
Half of the people in the choir are women.

The number of women in the choir is 3 times the number of men in the choir.
The rest of the people in the choir are children.

the number of children in the choir : the number of men in the choir = n : 1

Work out the value of n.
You must show how you get your answer.

n = ...

(Total for Question 21 is 4 marks)

Question 90

7 $w = 4u + 3$

Find the value of w when $u = 8$

.....

(Total for Question 7 is 2 marks)

14 Here is a rectangle.



Coby has to find the perimeter of this rectangle.

He writes,

Perimeter = 7×3

(a) What mistake has Coby made?

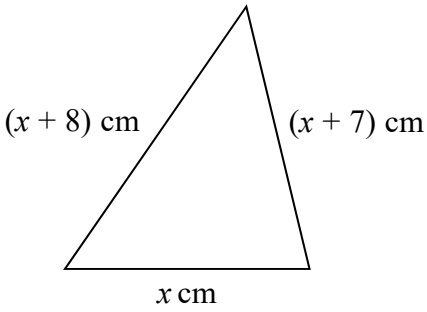
.....

.....

.....

(1)

Here is a triangle.



Iram solves a problem about this triangle to find the value of x.

Her answer is

$x = -2$

(b) Explain why Iram's answer must be wrong.

.....

.....

.....

(1)

(Total for Question 14 is 2 marks)

Question 92

November 2019 | 1MA1/3F | Original Q19

19 Solve $4(x - 6) = 44$

$x =$ .....

(Total for Question 19 is 2 marks)

19 (a) Expand $x(x - 4)$

.....

(1)

(b) Factorise $15y - 10$

.....

(1)

(c) Solve $7(f - 5) = 28$

$f =$ .....

(2)

(Total for Question 19 is 4 marks)

10 (a) Solve $3m = 36$

$m =$ .....

(1)

(b) Solve $7 - x = 3$

$x =$ .....

(1)

(Total for Question 10 is 2 marks)

15 $T = 3x + 4y$

(a) Work out the value of T when $x = 5$ and $y = -7$

.....

(2)

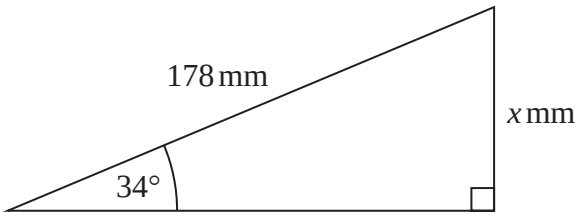
(b) Work out the value of y when $T = 38$ and $x = 6$

.....

(2)

(Total for Question 15 is 4 marks)

25

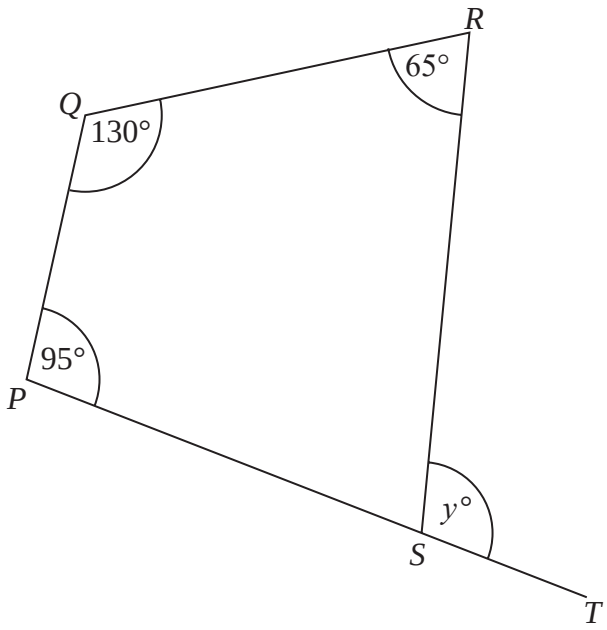


Work out the value of x.
Give your answer correct to 1 decimal place.

.....

(Total for Question 25 is 2 marks)

11 *PQRS* is a quadrilateral.
PST is a straight line.



Find the value of y.

y = ...

(Total for Question 11 is 3 marks)

14 (a) Simplify $3x + 5y + 2x - 4y$

.....

(2)

(b) Solve $5p + 7 = 22$

p = ...

(2)

(Total for Question 14 is 4 marks)

23 (a) Simplify $n^3 \times n^5$

.....

(1)

(b) Simplify $\frac{c^3d^4}{c^2d}$

.....

(2)

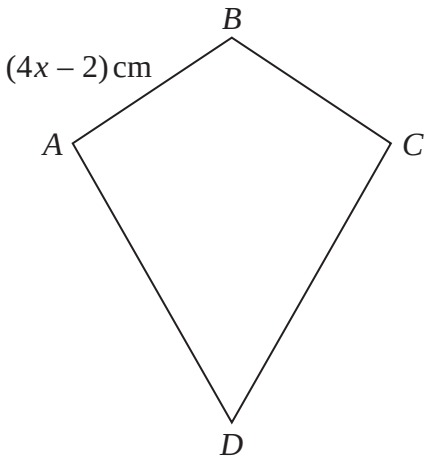
(c) Solve $\frac{5x}{2} > 7$

.....

(2)

(Total for Question 23 is 5 marks)

16 *ABCD* is a kite.



$AB = (4x - 2)$ cm

Jasper says that x could be 0.5

(a) Explain why Jasper cannot be correct.

.....

.....

.....

(1)

$AD = 3AB$
The kite has a perimeter of 64 cm.

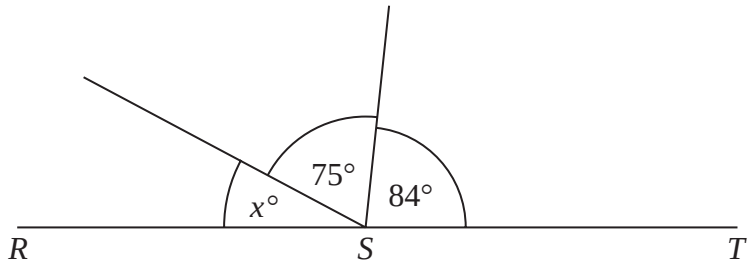
(b) Find the value of x.

$x =$.....

(3)

(Total for Question 16 is 4 marks)

13



RST is a straight line.

(i) Work out the value of *x*.

.....

(2)

(ii) Give a reason for your answer.

.....

.....

.....

(1)

(Total for Question 13 is 3 marks)

17 (a) Expand $y(y + 5)$

.....

(1)

(b) Factorise $4a - 6$

.....

(1)

(c) Solve $2(5x - 4) = 21$

$x =$ .....

(3)

(d) Simplify $4e^2f \times 5ef^3$

.....

(2)

(Total for Question 17 is 7 marks)

25 The first four terms of a Fibonacci sequence are

$$a \qquad 2a \qquad 3a \qquad 5a$$

The sum of the first five terms of this sequence is 228

Work out the value of a.

.....

(Total for Question 25 is 3 marks)

Question 104

14 $y = 6x - 5$

Work out the value of y when $x = 4$

$y =$ .....

(Total for Question 14 is 2 marks)

Question 105

June 2022 | 1MA1/1F | Original Q23

23 Solve $7x - 27 < 8$

.....

(Total for Question 23 is 2 marks)

Question 106

June 2022 | 1MA1/3F | Original Q17

17 (a) Expand $3(4 - 2x)$

.....

(1)

(b) Solve $\frac{3y}{4} = 12$

$y =$ .....

(2)

(c) Factorise $4p + 6$

.....

(1)

(Total for Question 17 is 4 marks)

23 $T = 4m^2 - 11$

(a) Work out the value of T when $m = -3$

$T =$ .....

(2)

(b) Make p the subject of the formula $d = 3p + 4$

.....

(2)

(Total for Question 23 is 4 marks)

24 Rick, Selma and Tony are playing a game with counters.

Rick has some counters.
Selma has twice as many counters as Rick.
Tony has 6 counters less than Selma.

In total they have 54 counters.

the number of counters Rick has : the number of counters Tony has = 1 : p

Work out the value of p.

p = ...

(Total for Question 24 is 5 marks)

8 (a) Solve $m - 3 = 4$

$m =$ .....

(1)

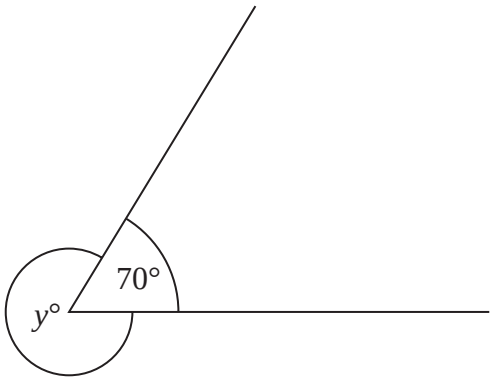
(b) Solve $3n + n = 24$

$n =$ .....

(2)

(Total for Question 8 is 3 marks)

9



(a) Find the value of y.

$y =$ .....

(1)

(b) Give a reason for your answer.

.....

.....

.....

(1)

(Total for Question 9 is 2 marks)

14 (a) Simplify $4c + 7d + 3c - d$

.....

(2)

(b) Solve $5(2m - 6) = 40$

$m =$ .....

(3)

There are x sweets in a box.

There are y sweets in a packet.

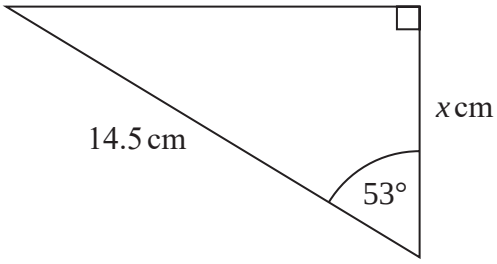
(c) Write an expression, in terms of x and y, for the total number of sweets in 3 boxes and 2 packets.

.....

(2)

(Total for Question 14 is 7 marks)

22



Work out the value of x.
Give your answer correct to 3 significant figures.

x = ...

(Total for Question 22 is 2 marks)

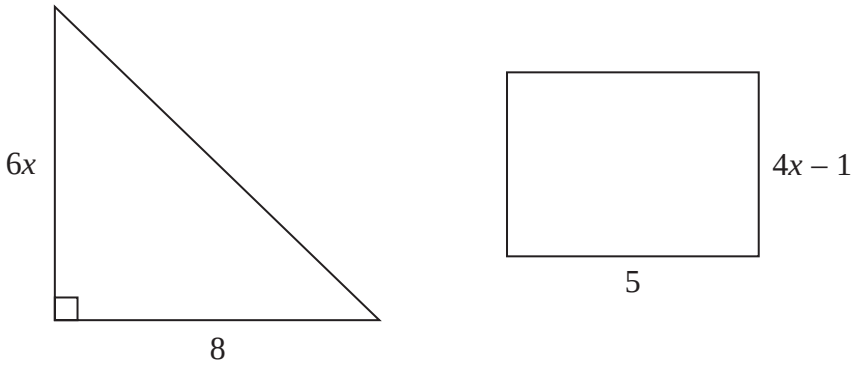
Question 113

5 Solve $p - 2 = 3$

$p =$ .....

(Total for Question 5 is 1 mark)

24 Here is a triangle and a rectangle.



All measurements are in centimetres.

The area of the triangle is $10\,cm^2$ greater than the area of the rectangle.

Work out the value of x.

$x =$ .....

(Total for Question 24 is 4 marks)

Question 115

11 Gabriel thinks of a number.

He multiplies his number by 5 and then adds 7
His answer is 72

What number did Gabriel think of?

.....

(Total for Question 11 is 3 marks)

Question 116

18 Solve $4(2x - 3) = 20$

$x =$ .....

(Total for Question 18 is 3 marks)

19 Jenny invests £3000 for 6 years at y% simple interest per year.

At the end of the 6 years, Jenny has received a total of £450 in interest.

Work out the value of y.

$y =$ .....

(Total for Question 19 is 3 marks)

12 $P = 2g + 4h$

(a) (i) Work out the value of P when $g = 3$ and $h = 5$

$P =$ .....

(2)

(ii) Work out the value of g when $P = 38$ and $h = 3$

$g =$ .....

(2)

$V = 3r - q$

(b) Work out the value of V when $r = -3$ and $q = 2$

$V =$ .....

(2)

(Total for Question 12 is 6 marks)

24 Mano has three shelves of books.

There are x books on shelf **A**.
There are $(3x + 1)$ books on shelf **B**.
There are $(2x - 5)$ books on shelf **C**.

There is a total of 44 books on the three shelves.

All the books have the same mass.

The books on shelf **B** have a total mass of 7500 g.

Work out the total mass of the books on shelf **A**.

..... g

(Total for Question 24 is 5 marks)

Question 120

25 Solve $5x - 14 = 52 - x$

$x =$ .....

(Total for Question 25 is 3 marks)

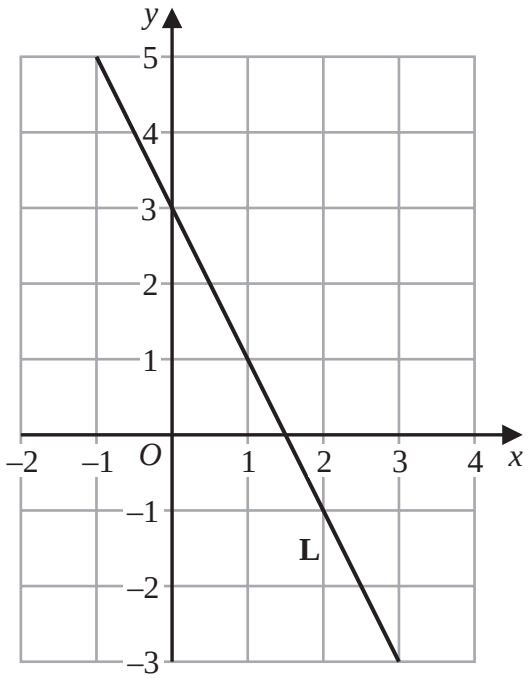
Question 121

16 Solve $\frac{x}{7} + 9 = 4$

$x =$ .....

(Total for Question 16 is 2 marks)

28 The line **L** is shown on the grid.



Find an equation for **L**.

.....

(Total for Question 28 is 3 marks)

Question 123

17 Solve $2(4x - 5) = 18$

$x =$ .....

(Total for Question 17 is 3 marks)

28 Solve $x + 11 \leqslant 5 - \frac{1}{2}x$

.....

(Total for Question 28 is 3 marks)

13 (a) Simplify $2c \times 3d$

.....

(1)

$T = x + 2y$

$x = 3$ and $y = -4$

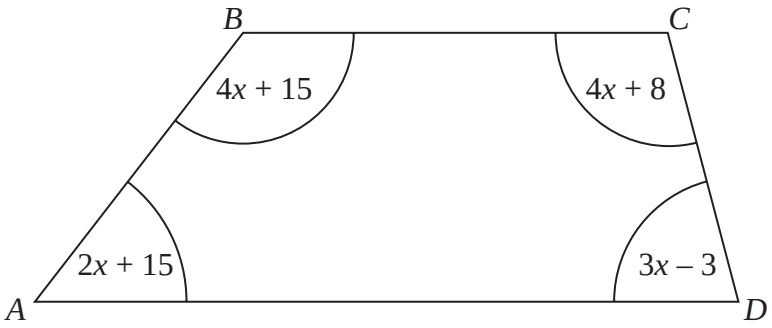
(b) Work out the value of T.

$T =$ .....

(2)

(Total for Question 13 is 3 marks)

26 *ABCD* is a quadrilateral.



All angles are measured in degrees.

Show that *ABCD* is a trapezium.

(Total for Question 26 is 4 marks)

29 $w = 40 - t^2$

(a) Calculate the value of w when $t = -5$

$w =$ .....

(2)

$$p = \frac{h - 5}{3}$$

(b) Make h the subject of the formula.

.....

(2)

(Total for Question 29 is 4 marks)

15 (a) Factorise $6a + 15$

.....

(1)

(b) Solve $4(3y + 1) = 28$

$y =$ .....

(3)

(Total for Question 15 is 4 marks)

Question 129

27 $1.25 \times 10^{-12} = k \times (4 \times 10^{-20})$

Work out the value of k.
Give your answer in standard form.

$k =$ .....

(Total for Question 27 is 2 marks)

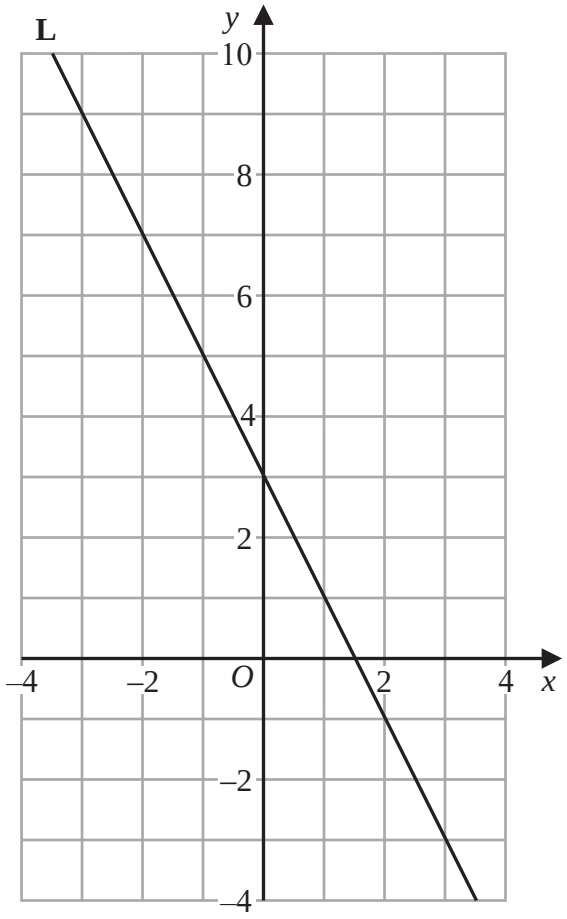
23 Jana used her calculator to find the value of a number t.
The answer on her calculator began 10.2

Complete the error interval for t.

..... $\leqslant t <$ .....

(Total for Question 23 is 2 marks)

27 Line **L** is drawn on the grid.



Find an equation for line **L**.

.....

(Total for Question 27 is 3 marks)

9 Greg is x years old.

Greg is 5 years older than Katy.

(a) Write down an expression, in terms of x, for Katy's age.

.....

(1)

Carl is twice as old as Greg.

(b) Write down an expression, in terms of x, for Carl's age.

.....

(1)

(c) Solve $4y = 12$

$y =$ .....

(1)

(Total for Question 9 is 3 marks)

22 There are 280 chocolates in a box.
There are only dark chocolates, milk chocolates and white chocolates.

$\frac{1}{7}$ of the 280 chocolates are dark chocolates.

The number of milk chocolates : the number of white chocolates = 1 : 3

The number of white chocolates : the number of dark chocolates = n : 1

(a) Work out the value of n.
You must show all your working.

n = ...

(5)

10 milk chocolates from the box are eaten.

(b) Does this affect your answer to part (a)?
Give a reason for your answer.

.....

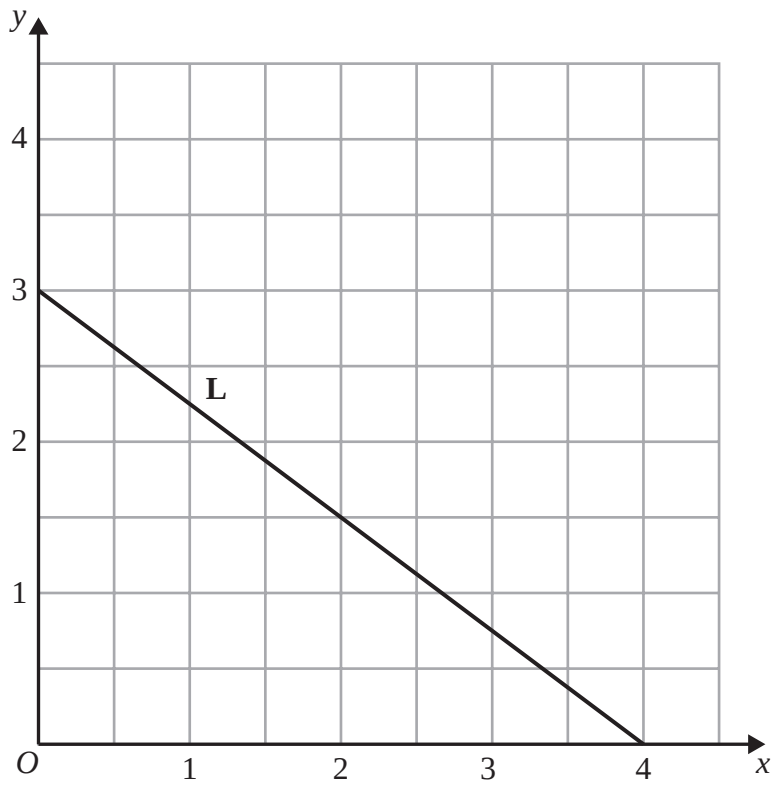
.....

.....

(1)

(Total for Question 22 is 6 marks)

25 The straight line **L** is shown on the grid.

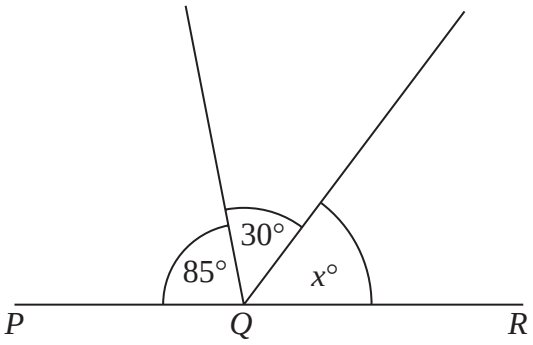


Find an equation for **L**.
Give your answer in the form $y = mx + c$

.....

(Total for Question 25 is 3 marks)

9



PQR is a straight line.

(i) Work out the value of *x*.

x = ...

(2)

(ii) Give a reason for your answer.

.....

.....

.....

(1)

(Total for Question 9 is 3 marks)

13 (a) Simplify $n \times n \times n$

.....

(1)

(b) Solve $5k - 4 = 26$

$k =$ .....

(2)

(Total for Question 13 is 3 marks)

25 Here are two lists of numbers.

List **A**	276	400	157	139		
List **B**	530	500	270	x	440	320

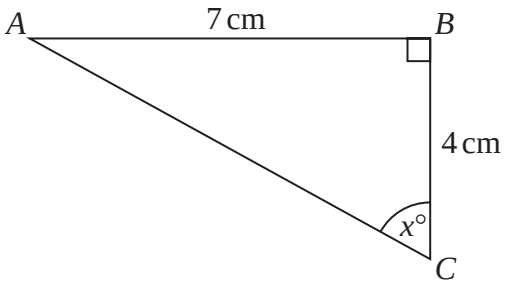
mean of list **A** : mean of list **B** = 3 : 5

Work out the value of x.

x = ...

(Total for Question 25 is 5 marks)

26 *ABC* is a right-angled triangle.



Calculate the value of x.
Give your answer correct to 1 decimal place.

x = ...

(Total for Question 26 is 2 marks)

29 The first three terms of a Fibonacci sequence are

$a \qquad 3a \qquad 4a$

The 5th term of this sequence is 286

Work out the value of a.

$a =$ .....

(Total for Question 29 is 3 marks)