Cambridge Assessment International Education

Non-Calculator Practice Questions - Core

Cambridge IGCSE™ / IGCSE (9–1)

Mathematics 0580 / 0980

For examination from 2025



Cambridge Pathway

© Cambridge University Press & Assessment 2024

Cambridge International Education is part of Cambridge University Press & Assessment. Cambridge University Press & Assessment is a department of the University of Cambridge.

Cambridge University Press & Assessment retains the copyright on all its publications. Registered centres are permitted to copy material from this booklet for their own internal use. However, we cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within a centre.

Introduction

These practice questions have been compiled by Cambridge International ahead of the first examination of the revised Cambridge IGCSE Mathematics 0580/0980 syllabus in 2025. These practice questions have been selected from past papers for Cambridge IGCSE Mathematics 0580 and are intended to provide further practice resources for the non-calculator components.

The revised syllabus and specimen papers are available at https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-igcse-mathematics-0580/

Further support materials, including a second set of Specimen Papers, a set of Practice Papers and Specimen Paper Answers are available from the School Support Hub at http://www.cambridgeinternational.org/support

© Cambridge University Press & Assessment 2024

Mark Scheme Abbreviations

Types of mark

M	Method mark, awarded for a valid method applied to the problem.
A	Accuracy mark, given for a correct answer or intermediate step correctly obtained. For accuracy marks to be given, the associated Method mark must be earned or implied.
B	Mark for a correct result or statement independent of Method marks.

Abbreviations

cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
nfww	not from wrong working
oe	or equivalent
SC	special case
soi	seen or implied

© Cambridge University Press & Assessment 2024

Number

© Cambridge University Press & Assessment 2024

1 Write 0.00273 in standard form.

..... [1]

[Total: 1]

2 Write the number two million eight hundred and forty thousand three hundred and twenty-seven in figures.

..... [1]

[Total: 1]

3 Write 32 cm as a fraction of 2 m.
Give your answer in its simplest form.

..... [2]

[Total: 2]

4 **Without using a calculator**, work out $\frac{1}{3} + \frac{5}{6}$.

You must show all your working and give your answer as a mixed number in its simplest form.

..... [2]

[Total: 2]

5 The temperature, in °C, is recorded at the same time in six cities.

London	Helsinki	Oslo	Paris	Madrid	Berlin
6	−2	−5	7	9	2

(a) Which city has the coldest temperature?

..... [1]

(b) What is the difference in temperature between Helsinki and Paris?

.....°C [1]

[Total: 2]

6 Divide $200 in the ratio 7 : 3.

$ ..... , $ ..... [2]

[Total: 2]

7 The length, l cm, of a bicycle is 96 cm, correct to the nearest centimetre.

Complete this statement about the value of l.

.... [2]

[Total: 2]

8 A train to town A leaves a station every 25 minutes.
A train to town B leaves the same station every 45 minutes.
Both trains leave at 08 00.

Find the next time both trains leave together.

..... [3]

[Total: 3]

9 Find a factor of 63 between 5 and 10.

..... [1]

[Total: 1]

10 Find the value of 12^0.

..... [1]

[Total: 1]

11 Jason starts a run at 10.05 am and finishes at 1.02 pm.

Work out the time Jason takes to complete the run.

..... h ..... min [1]

[Total: 1]

12 **Without using a calculator**, work out $4\frac{1}{6} - 1\frac{7}{8}$.

You must show all your working and give your answer as a mixed number in its simplest form.

..... [3]

[Total: 3]

13 Write the number one hundred and three thousand eight hundred and six in figures.

..... [1]

[Total: 1]

14 At noon, the temperature is 4 °C.
At midnight, the temperature is −9 °C.

Work out the difference in temperature between noon and midnight.

..... °C [1]

[Total: 1]

15 The mass of an aircraft, m tonnes, is 473 tonnes, correct to the nearest tonne.

Complete this statement about the value of m.

..... $\leqslant m <$ ..... [2]

[Total: 2]

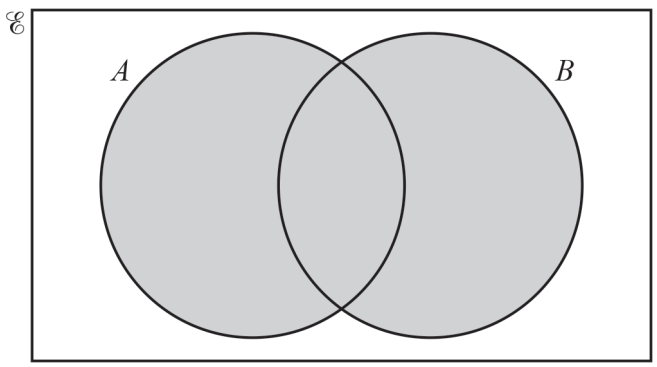
16 The height, h metres, of a fence post is 2.43 m, correct to the nearest centimetre.

Complete the statement about the value of h.

..... $\leqslant h <$ ..... [2]

[Total: 2]

17

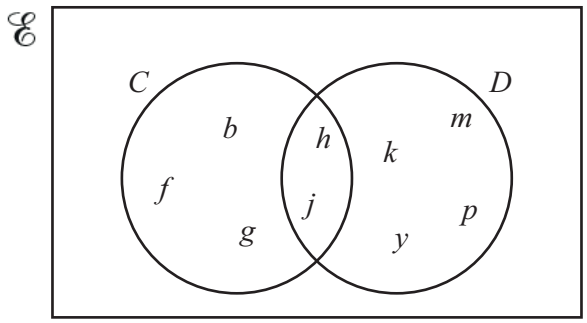


Use set notation to describe the shaded region.

..... [1]

[Total: 1]

18



Find n(C).

..... [1]

[Total: 1]

19 Write 5.26 pm using the 24-hour clock.

..... [1]

[Total: 1]

20 Write down the reciprocal of $\frac{5}{6}$.

..... [1]

[Total: 1]

21 Write 0.0001 as a power of 10.

..... [1]

[Total: 1]

22 This is Edha's method to work out 99×27 without using a calculator.

$$\begin{aligned} 99 \times 27 &= 100 \times 27 - 27 \\ &= 2700 - 27 \\ &= 2673 \end{aligned}$$

Show how to use Edha's method to work out 99×68 without using a calculator.

[2]

[Total: 2]

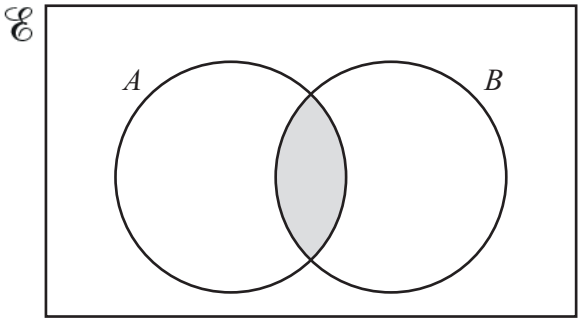
23 **Without using a calculator**, work out $2\frac{1}{3} \times \frac{11}{14}$.

You must show all your working and give your answer as a mixed number in its simplest form.

..... [3]

[Total: 3]

24



Use set notation to describe the shaded region.

..... [1]

[Total: 1]

25 A journey starts at 21 15 one day and ends at 04 33 the next day.

Calculate the time taken, in hours and minutes.

..... h ..... min [1]

[Total: 1]

26

Fraction		Decimal		Percentage
$\frac{1}{2}$	=	0.5	=	50
.....	=	0.25	=	.....
$\frac{1}{5}$	=	.....	=	20

Complete the table. [3]

[Total: 3]

27 Write 0.006 54 in standard form.

..... [1]

[Total: 1]

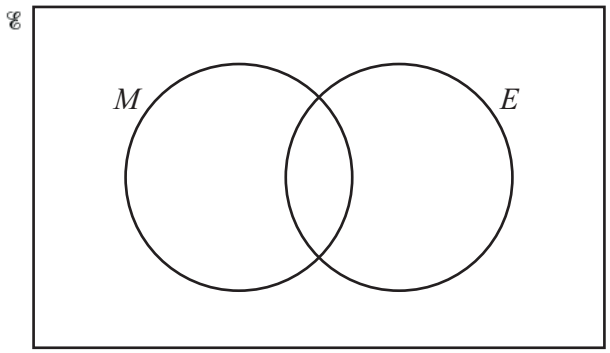
28 Write 0.000 74 in standard form.

..... [1]

[Total: 1]

29 A group of 120 students take two tests, mathematics and English.
Here is some information about the number of students who pass mathematics (M) and who pass English (E).

- 61 students pass mathematics.
- 27 students pass both mathematics and English.
- 19 students do not pass mathematics and do not pass English.



(a) Complete the Venn diagram. [3]

(b) Use the Venn diagram to find n(E).

..... [1]

[Total: 4]

30

$$\frac{7}{5} \qquad 0.6 \qquad \sqrt{7} \qquad 8 \qquad \sqrt{9}$$

From this list, write down an irrational number.

..... [1]

[Total: 1]

31 The number 1.467×10^{102} is written as an ordinary number.

Write down the number of zeros that follow the digit 7.

..... [1]

[Total: 1]

32 The mass, m grams, of a ball is 415 g, correct to the nearest 5 grams.

Complete the statement about the value of m.

..... $\leqslant m <$ ..... [2]

[Total: 2]

33 Write 567 000 000 in standard form.

..... [1]

[Total: 1]

34 Tanvi rounds the number 4896.
She writes down 4900.
Rahul says Tanvi rounded 4896 correct to the nearest 100.

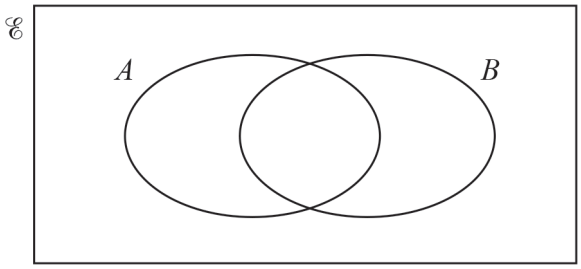
Explain why Rahul cannot be certain that Tanvi rounded 4896 correct to the nearest 100.

.....

..... [1]

[Total: 1]

35 On the Venn diagram, shade the region $A \cap B$.



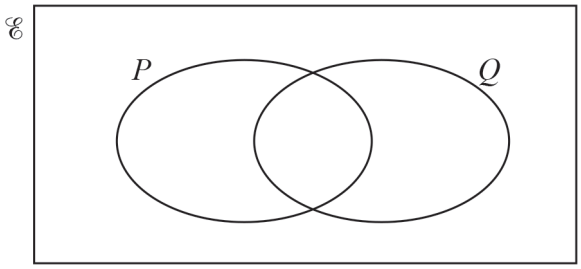
[1]

[Total: 1]

36 $\mathscr{E} = \{1, 2, 3, 4, 5, 6\}$

$P = \{x : x \text{ is an even number}\}$

$Q = \{x : x \text{ is a prime number}\}$



Complete the Venn diagram. [2]

[Total: 2]

37 Put one pair of brackets in each statement to make it correct.

(a) 16 ÷ 8 + 4 × 2 = 1 [1]

(b) 16 ÷ 8 + 4 × 2 = 12 [1]

[Total: 2]

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1	2.73×10^{-3} cao	**1**			
2	2 840 327	**1**			
3	$\frac{4}{25}$ cao	**2**		**M1** for $\frac{32}{200}$ oe	
4	**M1** for $\frac{2}{6} + \frac{5}{6}$ oe **A1** for $1\frac{1}{6}$ cao	**2**		i.e. correct fractions with common denominator $6k$	
5(a)	Oslo	**1**			
5(b)	9	**1**			
6	140, 60	**2**		**M1** for $\frac{200}{(7+3)} \times k$ where $k = 1$, 7 or 3	
7	95.5 96.5	**2**		**B1** for each If 0 scored, **SC1** for both correct but reversed	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
8	11 45	**3**		**B2** for 225 or 3 hr 45 mins or **M1** for 225k or $3 \times 3 \times 5 \times 5$ or [25 =] 5×5 and [45 =] $3 \times 3 \times 5$ or two correct factor trees/tables of both 25 and 45 OR **M2** for listing times/multiples of both 25 and 45 to at least 11 45 or 225 or **M1** for listing at least 3 consecutive times/multiples of each correctly or one full list	
9	7 or 9	**1**			
10	1	**1**			
11	2 [h] 57 [m]	**1**			

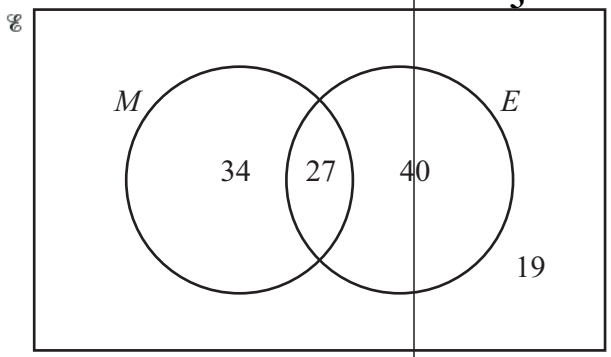
Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
12	**B1** for $\frac{25}{6}$ or $\frac{15}{8}$ $3\frac{1}{6} - \frac{7}{8}$ **M1** for $\frac{100}{24}$ and $\frac{45}{24}$ oe [3] $\frac{4}{24}$ and $\frac{21}{24}$ **A1** for $2\frac{7}{24}$ final answer	**3**		Correct step for dealing with mixed numbers Allow $\frac{25k}{6k}$ or $\frac{15k}{8k}$ Correct method to find common denominator e.g. $4\frac{4}{24}$ and $1\frac{21}{24}$	
13	103 806	**1**			
14	13 or −13	**1**			
15	472.5 473.5	**2**		**B1** for each If zero scored, **SC1** for both correct but reversed	
16	2.425 2.435	**2**		**B1** for each If zero scored, **SC1** for $242.5 \leqslant h < 243.5$ or for both correct but reversed	
17	$A \cup B$	**1**			
18	5	**1**			

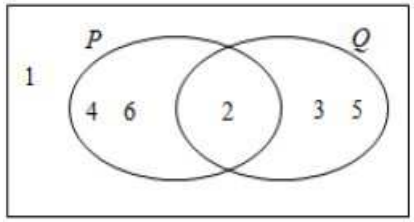
Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
19	1726	**1**			
20	1.2 oe	**1**			
21	10^{-4}	**1**			
22	$100 \times 68 - 68$ $= 6800 - 68$ $= 6732$	**2**		**M1** for $100 \times 68 - 68$	
23	**M1** for $\frac{7}{3}$ oe improper fraction or $\frac{k}{3} \times \frac{11}{14}$ where $k > 3$ **A2** for $1\frac{5}{6}$ cao	**3**		**A1** for $\frac{77}{42}$ or $\frac{11}{6}$ or $1\frac{35}{42}$	
24	$A \cap B$	**1**			
25	7 [h] 18 [min]	**1**			
26	$\frac{1}{4}$ oe fraction 25 0.2	**3**		**B1** for each in correct place	
27	6.54×10^{-3}	**1**			

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
28	7.4×10^{-4}	**1**			
29(a)		**3**		**B2** for 2 or 3 numbers in the correct place or **B1** for 1 correct number in the correct place	
29(b)	67	**1**		**FT** *their* diagram	
30	$\sqrt{7}$	**1**			
31	99	**1**			
32	412.5 417.5	**2**		**B1** for each If 0 scored, **SC1** for both correct but reversed	
33	5.67×10^{8}	**1**			
34	A correct alternative rounding e.g. Tanvi rounded to nearest 10	**1**			

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
35	Intersection shaded	**1**			
36		**2**		**B1** for four or five numbers in the correct place	
37(a)	$16 \div (8 + 4 \times 2) = 1$	**1**			
37(b)	$(16 \div 8 + 4) \times 2 = 12$	**1**			
					[Total: 59]

Algebra and graphs

© Cambridge University Press & Assessment 2024

1 13, 17, 21, 25, ...

Find the nth term of this sequence.

..... [2]

[Total: 2]

2 3, 9, 27, 81, ...

Write down the term to term rule for this sequence.

..... [1]

[Total: 1]

3 $9^{24} \div 9^{w} = 9^{5}$

Find the value of w.

w = ... [1]

[Total: 1]

4 Factorise completely.

$$14x^3 + 49x$$

..... [2]

[Total: 2]

5 Simplify.

$$5g - 3h - 7g + 6h$$

..... [2]

[Total: 2]

6 $j = 4k + 7m$

Find the value of j when $k = -5$ and $m = 6$.

$j =$ ..... [2]

[Total: 2]

7 22, 17, 12, 7, 2, ...

(a) Find the next term of the sequence.

..... [1]

(b) Find the nth term of the sequence.

..... [2]

[Total: 3]

8 $v = 3 - 5t$

Work out the value of v when $t = 4$.

$v =$ ..... [1]

[Total: 1]

9 $v = 3 - 5t$

Make t the subject of the formula.

$t =$ ..... [2]

[Total: 2]

10 Factorise completely.

$14xy - 7y^2$

..... [2]

[Total: 2]

11 A bag of rice costs \$$r$ and a bag of almonds costs \$$a$.
Pedro buys x bags of rice and y bags of almonds.

Write down an expression for the change that Pedro receives from a \$20 note.

\$ ..... [2]

[Total: 2]

12 Joe thinks of a number, n, trebles it, and subtracts 5.
The result is 22.

Write this as an equation in terms of n, and solve the equation.

$n =$ ..... [3]

[Total: 3]

13 Simplify.

$y^3 \div y^5$

..... [1]

[Total: 1]

14 Simplify.

$7x^0$

..... [1]

[Total: 1]

15 Factorise.
$x^2 - 8xy$

..... [1]

[Total: 1]

16 Simplify.
$3x - 4x + 7x$

..... [1]

[Total: 1]

17 The total cost of n bags of flour is \$$d$.

Write down an expression for the cost of one bag of flour.

\$ ..... [1]

[Total: 1]

18 Simplify.

$3(2a - b) - b$

..... [2]

[Total: 2]

19 The nth term of a sequence is $n^2 - 1$.

Find the first three terms of this sequence.

..... , ... , ... [2]

[Total: 2]

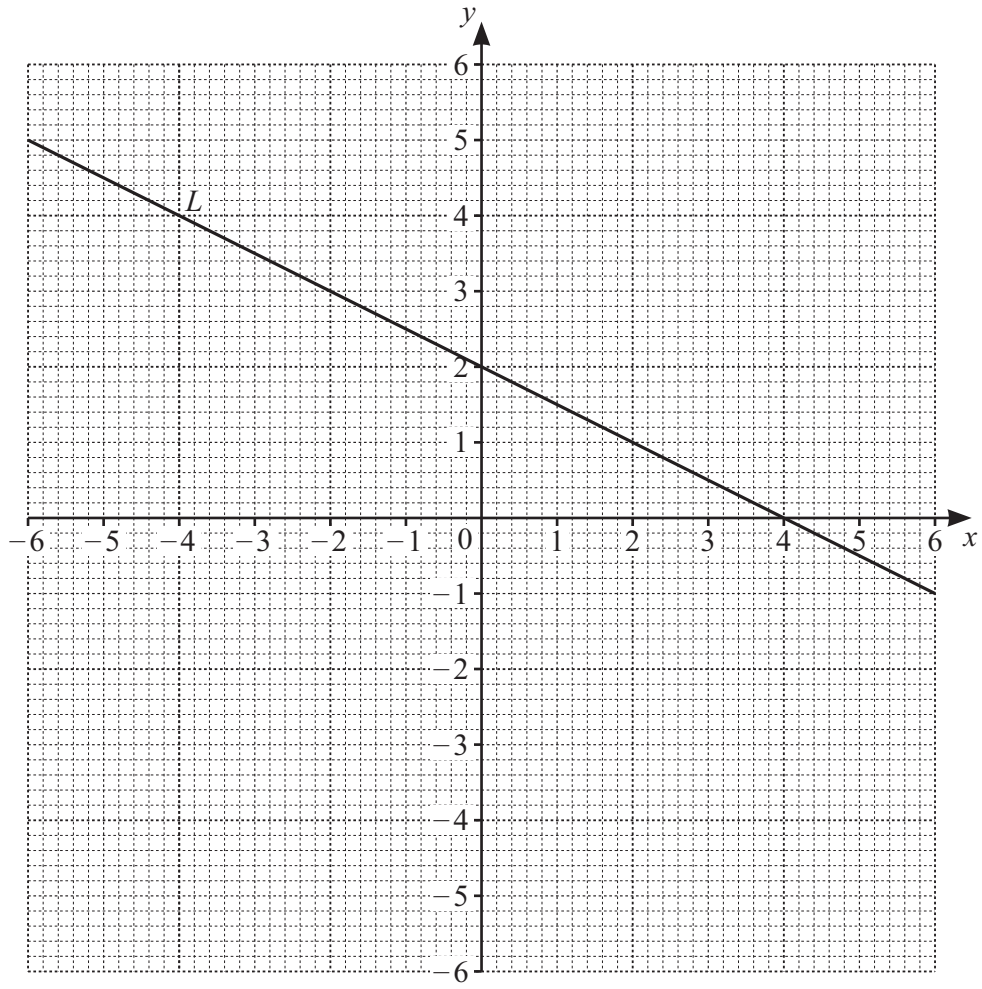
20 Simplify.

$6(2x + 1) - 5(x - 2)$

..... [2]

[Total: 2]

21 The grid shows a line L.



(a) Find the equation of line L.

Give your answer in the form $y = mx + c$.

$y =$ ..... [2]

(b) **(i)** Complete the table of values for $y = 2x + 5$.

x	−5	−3	0
y	−5		5

[1]

(ii) On the grid, draw the graph of $y = 2x + 5$. [1]

(c) Write down the coordinates of the point which lies on both line L and the graph of $y = 2x + 5$.

(..... , ...) [1]

(d) Write down the equation of the line that is parallel to $y = 2x + 5$ and passes through the point (0, 18).

..... [1]

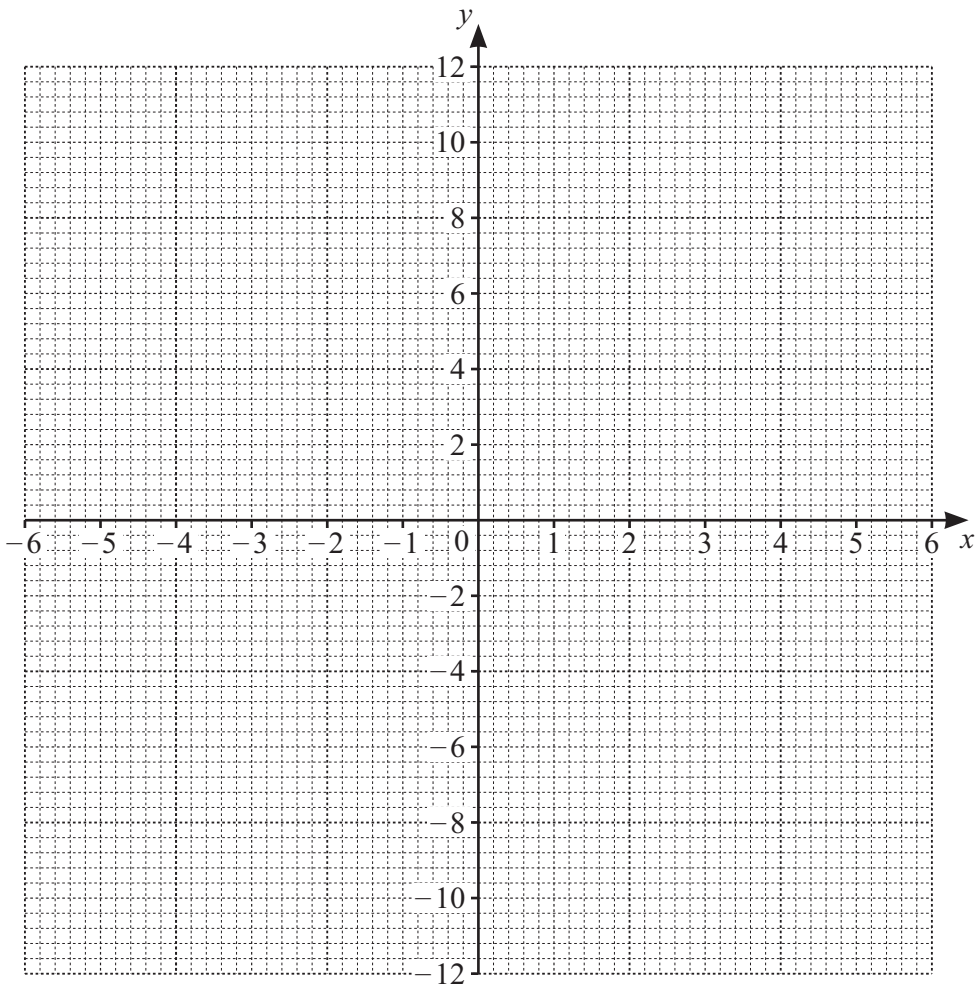
[Total: 6]

22 **(a)** Complete the table of values for $y = \frac{12}{x}$, $x \neq 0$.

x	−6	−4	−3	−2	−1		1	2	3	4	6
y		−3		−6				6		3	

[3]

22 **(b)** On the grid, draw the graph of $y = \frac{12}{x}$ for $-6 \leqslant x \leqslant -1$ and $1 \leqslant x \leqslant 6$.



[4]

(c) On the grid, draw the line $y = 5$. [1]

(d) Use your graph to solve the equation $\frac{12}{x} = 5$.

$x =$ ..... [1]

[Total: 9]

23 Renuka's teacher asks her to factorise completely $8x^2 - 12x$.
Renuka writes $2x\,(4x - 6)$ as her answer.

Explain why she does not score full marks and give the correct answer.

Reason .....

Correct answer ..... [2]

[Total: 2]

24 Simplify.

$5f + 7g - 8f + 2g$

..... [2]

[Total: 2]

25 Expand and simplify.
$(x + 3)\,(x - 5)$

..... [2]

[Total: 2]

26 Rearrange the formula $y = mx + c$ to make x the subject.

$x =$ ..... [2]

[Total: 2]

27 $-1, \quad 1, \quad 3, \quad 5, \quad ...$

Find the nth term for this sequence.

..... [2]

[Total: 2]

28 $30, \quad 26, \quad 22, \quad 18, \quad ...$

Write down the term to term rule for this sequence.

..... [1]

[Total: 1]

29 Expand and simplify.

$$(x + 5)(x - 3)$$

..... [2]

[Total: 2]

30 Expand and simplify.

$$6(t - q) - 2(t - 3q)$$

..... [2]

[Total: 2]

31 Simplify.

$$8w^{10} \times 6w^5$$

..... [2]

[Total: 2]

32 Simplify $3x^3 \times 4x^4$.

..... [2]

[Total: 2]

33 These are the first four terms of a sequence.

7 11 15 19

Find the nth term.

..... [2]

[Total: 2]

34 Solve the simultaneous equations.
You must show all your working.

$$2x + y = 3$$
$$x - 5y = 40$$

$x =$ .....

$y =$ ..... [3]

[Total: 3]

35 Simplify.

(a) $x^{12} \div x^3$

..... [1]

(b) $\left(y^2\right)^5$

..... [1]

[Total: 2]

36 Here are the first five terms of a sequence.

12 19 26 33 40

Find an expression for the nth term of this sequence.

..... [2]

[Total: 2]

37 Expand and simplify.

$(x - 5)(x - 7)$

..... [2]

[Total: 2]

38 Simplify.

(a) $p^2 \times p^4$

..... [1]

(b) $m^{15} \div m^5$

..... [1]

(c) $\left(k^3\right)^5$

..... [1]

[Total: 3]

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1	$4n + 9$ oe final answer	**2**		**B1** for $4n + k$ or $jn + 9$, $j \neq 0$, or correct answer seen then spoilt	
2	$\times 3$	**1**			
3	19	**1**			
4	$7x\left(2x^2 + 7\right)$ final answer	**2**		**B1** for $7\left(2x^3 + 7x\right)$ or $x\left(14x^2 + 49\right)$ or correct answer seen then spoilt	
5	$-2g + 3h$ final answer	**2**		**B1** for $-2g$ or $3h$ in final answer or $-2g + 3h$ seen then spoilt	
6	22	**2**		**M1** for $4 \times -5 + 7 \times 6$ or **B1** for -20 or [+] 42	
7(a)	-3	**1**			
7(b)	$27 - 5n$ oe final answer	**2**		**B1** for $j - 5n$ or $27 - kn$, $k \neq 0$ or for $27 - 5n$ seen then spoilt	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
8	-17	**1**			
9	$\frac{3-v}{5}$ or $\frac{v-3}{-5}$ final answer	**2**		**M1** for $5t = 3 - v$ or $v - 3 = -5t$ or $\frac{v}{5} = \frac{3}{5} - t$	
10	$7y\,(2x - y)$ final answer	**2**		**B1** for $7\left(2xy - y^2\right)$ or $y\,(14x - 7y)$ or $7y\,(2x - y)$ seen then spoilt	
11	$20 - rx - ay$ oe	**2**		**B1** for rx and ay seen and not spoilt	
12	**B1** for $3n - 5 = 22$ **B2** for 9 final answer	**3**		**B2FT** *their* equation providing *their* equation is in the form $an + b = 22$ where $a \neq 0$ or 1 and $b \neq 0$ or **M1FT** for $3n = 22 + 5$ or $n - \frac{5}{3} = \frac{22}{3}$	
13	y^{-2} or $\frac{1}{y^2}$ final answer	**1**			

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
14	7	**1**			
15	$x(x-8y)$ final answer	**1**			
16	$6x$	**1**			
17	$\frac{d}{n}$ oe	**1**			
18	$6a-4b$ final answer	**2**		**B1** for $6a$ or $-4b$ in final answer or for $6a-4b$ spoilt	
19	0 3 8	**2**		**B1** for 2 correct terms in correct position or **SC1** for -1 0 3	
20	$7x+16$ final answer	**2**		**B1** for $12x+6$ or $-5x+10$ or $5x-10$ or for $7x$ or 16 in the final answer	
21(a)	$[y=]-\frac{1}{2}x+2$	**2**		**M1** for rise ÷ run or for $[y=]kx+2 \quad (k\neq 0)$ or $[y=]-\frac{1}{2}x+j$ oe	
21(b)(i)	-1	**1**			

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
21(b)(ii)	Correct ruled line on grid	**1**			
21(c)	−1.2, 2.6	**1**		**FT** Line *L* and *their* (**b**)(**ii**)	
21(d)	$y = 2x + 18$	**1**			
22(a)	−2 … −4 … −12 12 … 4 … 2	**3**		**B2** for 4 or 5 correct **B1** for 2 or 3 correct	
22(b)	Correct curve	**4**		**B3FT** for 9 or 10 points plotted correctly **B2FT** for 7 or 8 points plotted correctly **B1FT** for 5 or 6 points plotted correctly	
22(c)	Correct ruled line drawn	**1**			
22(d)	2.4	**1**		**FT** *their* graph and $y = 5$	
23	Correct reason $4x\,(2x - 3)$	**2**		**B1** for each	
24	$-3f + 9g$ final answer	**2**		**B1** for $-3f$ or $9g$ or correct answer spoilt	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
25	$x^2 - 2x - 15$ final answer	**2**		**B1** for $x^2 - 5x + 3x - 15$ with at least 3 terms correct or for correct answer seen and spoilt	
26	$[x =] \frac{y - c}{m}$ oe final answer	**2**		**M1** for correct first step $y - c = mx$ or $\frac{y}{m} = x + \frac{c}{m}$	
27	$2n - 3$ oe final answer	**2**		**B1** for $2n + c$ or $kn - 3$ $(k \neq 0)$ or for $2n - 3$ oe spoilt or $-1 + 2(n - 1)$ spoilt	
28	Subtract 4 oe	**1**			
29	$x^2 + 2x - 15$ final answer	**2**		**M1** for 3 correct terms from $x^2 - 3x + 5x - 15$ soi	
30	$4t$ final answer	**2**		**B1** for $6t - 6q$ or $-2t + 6q$ or $2t - 6q$ or for $4t$ or $0q$ in the final answer	
31	$48w^{15}$ final answer	**2**		**B1** for answer $48w^k$ or kw^{15} $(k \neq 0)$	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
32	$12x^7$ final answer	**2**		**B1** for $12x^j$ or kx^7 (j, $k \neq 0$) as final answer	
33	$4n + 3$ oe	**2**		**B1** for $4n + j$ or $kn + 3$ ($k \neq 0$) as answer or $4n + 3$ oe seen then spoilt	
34	**M1** for correctly eliminating one variable **A1** for $[x =]$ 5 **A1** for $[y =] -7$	**3**		If M0 scored, **SC1** for two values satisfying one of the original equations	
35(a)	x^9 cao	**1**			
35(b)	y^{10} cao	**1**			
36	$7n + 5$ oe final answer	**2**		**B1** for $7n + a$ or $bn + 5$ $b \neq 0$	
37	$x^2 - 12x + 35$	**2**		**B1** for any three of x^2, $-5x$, $-7x$, $+35$	
38(a)	p^6	**1**			
38(b)	m^{10}	**1**			
38(c)	k^{15}	**1**			

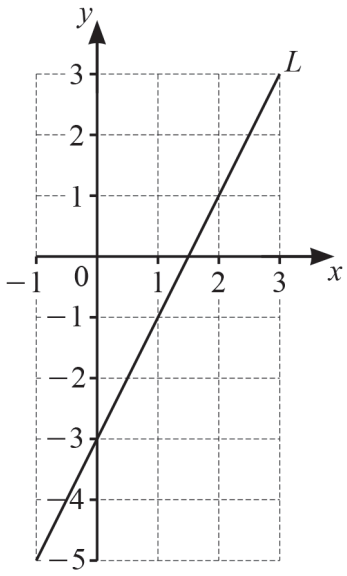
Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
					[Total: 82]

Coordinate geometry

© Cambridge University Press & Assessment 2024

1



Line L is shown on the grid.

(a) Find the equation of line L in the form $y = mx + c$.

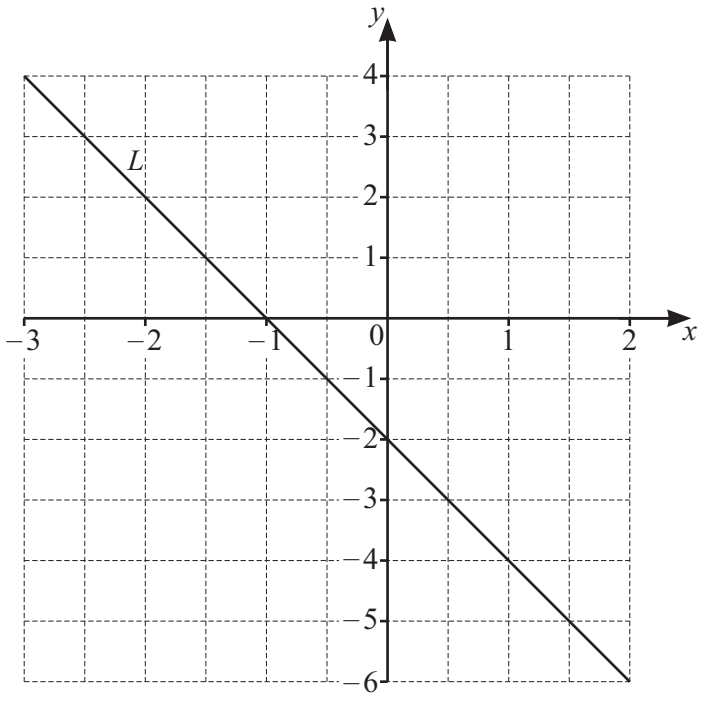
$y =$ ..... [2]

(b) Write down the equation of a line parallel to line L.

$y =$ ..... [1]

[Total: 3]

2



Find the gradient of line L.

..... [2]

[Total: 2]

3 The equation of a line is $y = 5x + 7$.

(a) Write down the gradient of this line.

..... [1]

(b) **(i)** Find the coordinates of the point where this line crosses the y-axis.

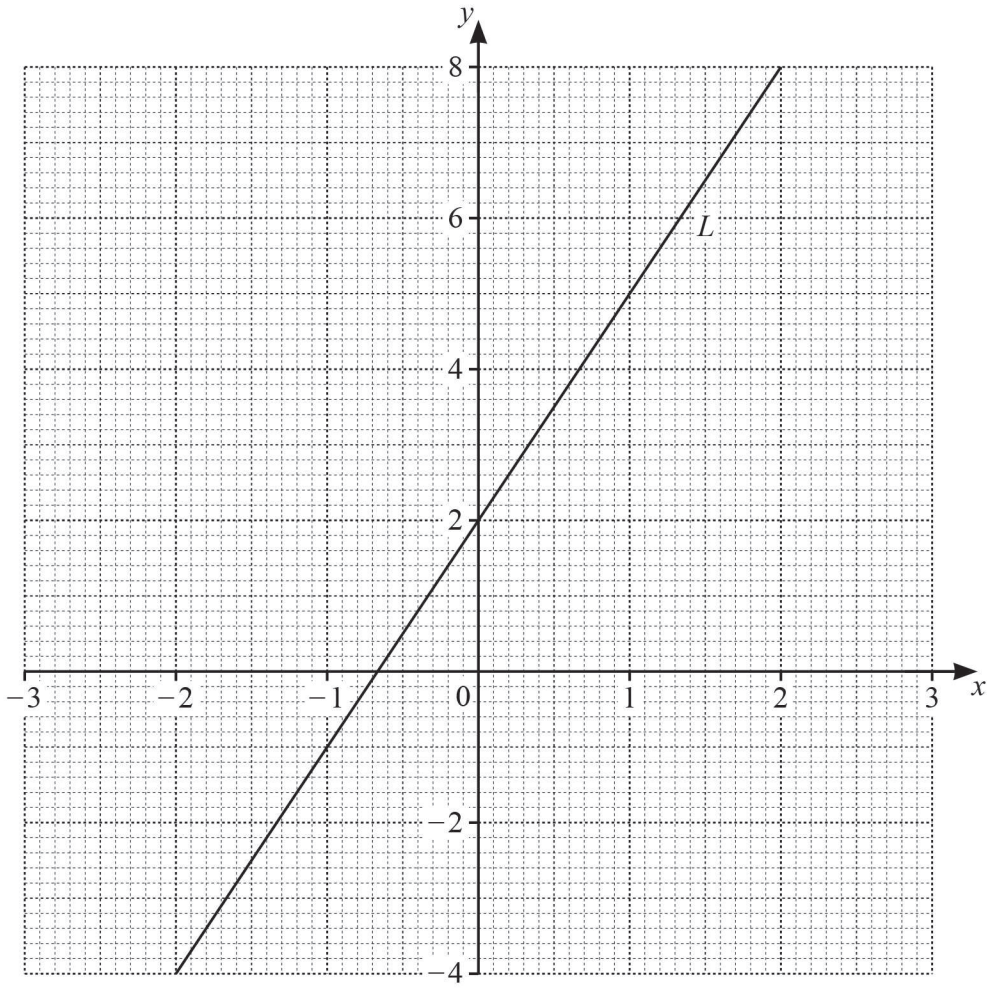
(..... , ...) [1]

(ii) Find the coordinates of the point where this line crosses the x-axis.

(..... , ...) [2]

[Total: 4]

4



Find the equation of line L.
Give your answer in the form $y = mx + c$.

$y =$ ..... [3]

[Total: 3]

5 Find the equation of the line which is

- parallel to the line $y = 3x - 5$

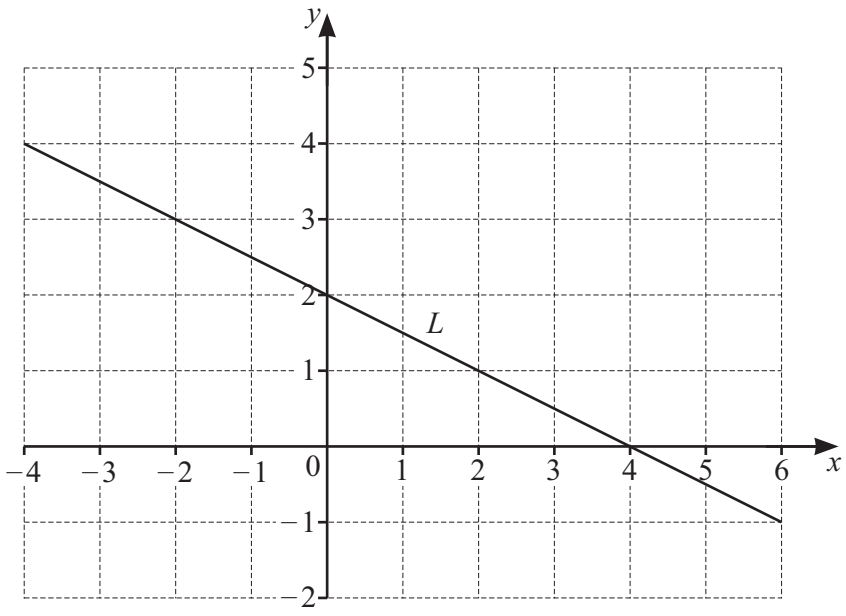
and

- passes through the point (0, 17).

..... [1]

[Total: 1]

6



Find the equation of line L in the form $y = mx + c$.

$y =$ ..... [2]

[Total: 2]

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1(a)	$[y =] 2x - 3$	**2**		**B1** for $2x + c$ or $mx - 3$ ($m \neq 0$ or 2)	
1(b)	$y = 2x + k$	**1**		**FT** *their* gradient (not zero) with different intercept than in **(a)**	
2	-2	**2**		**M1** for $\frac{-2k}{1k}$ or for $\frac{y_2 - y_1}{x_2 - x_1}$ for 2 points on the line	
3(a)	5	**1**			
3(b)(i)	(0, 7)	**1**			
3(b)(ii)	$\left(-\frac{7}{5}, 0\right)$ oe	**2**		**B1** for $0 = 5x + 7$ oe	

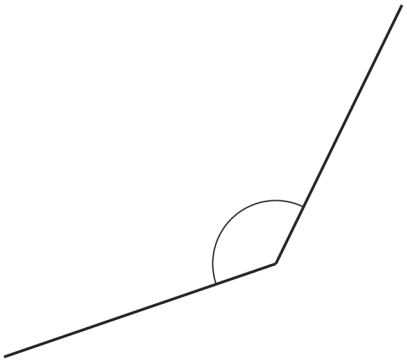
Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
4	$[y =]3x + 2$ final answer	**3**		**B2** for $[y =]3x + c$ as answer or **M1** for a correct rise/run e.g. $6 \div 2$ or $\frac{8-2}{2-0}$ or for a suitable right-angled triangle marked on graph with correct values shown for rise and run and **B1** for $[y =]mx + 2, m \neq 0$ as answer	
5	$y = 3x + 17$ cao	**1**			
6	$-0.5x + 2$ or $-\frac{1}{2}x + 2$	**2**		**B1** for $-0.5x + c$ oe or $mx + 2$ oe $(m \neq 0)$	
					[Total: 15]

Geometry

© Cambridge University Press & Assessment 2024

1

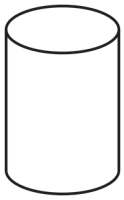


Write down the mathematical name of this type of angle.

..... [1]

[Total: 1]

2

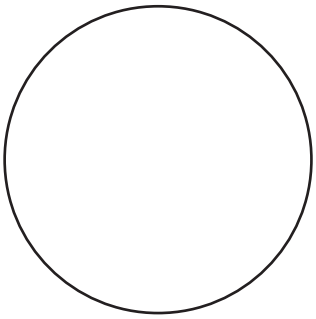


Write down the mathematical name of this solid.

..... [1]

[Total: 1]

3



The diagram shows a circle.

On the diagram, draw a chord. [1]

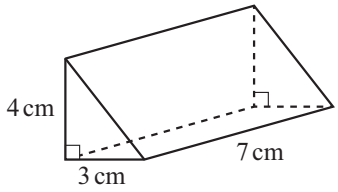
[Total: 1]

4 Write down the number of sides of a hexagon.

..... [1]

[Total: 1]

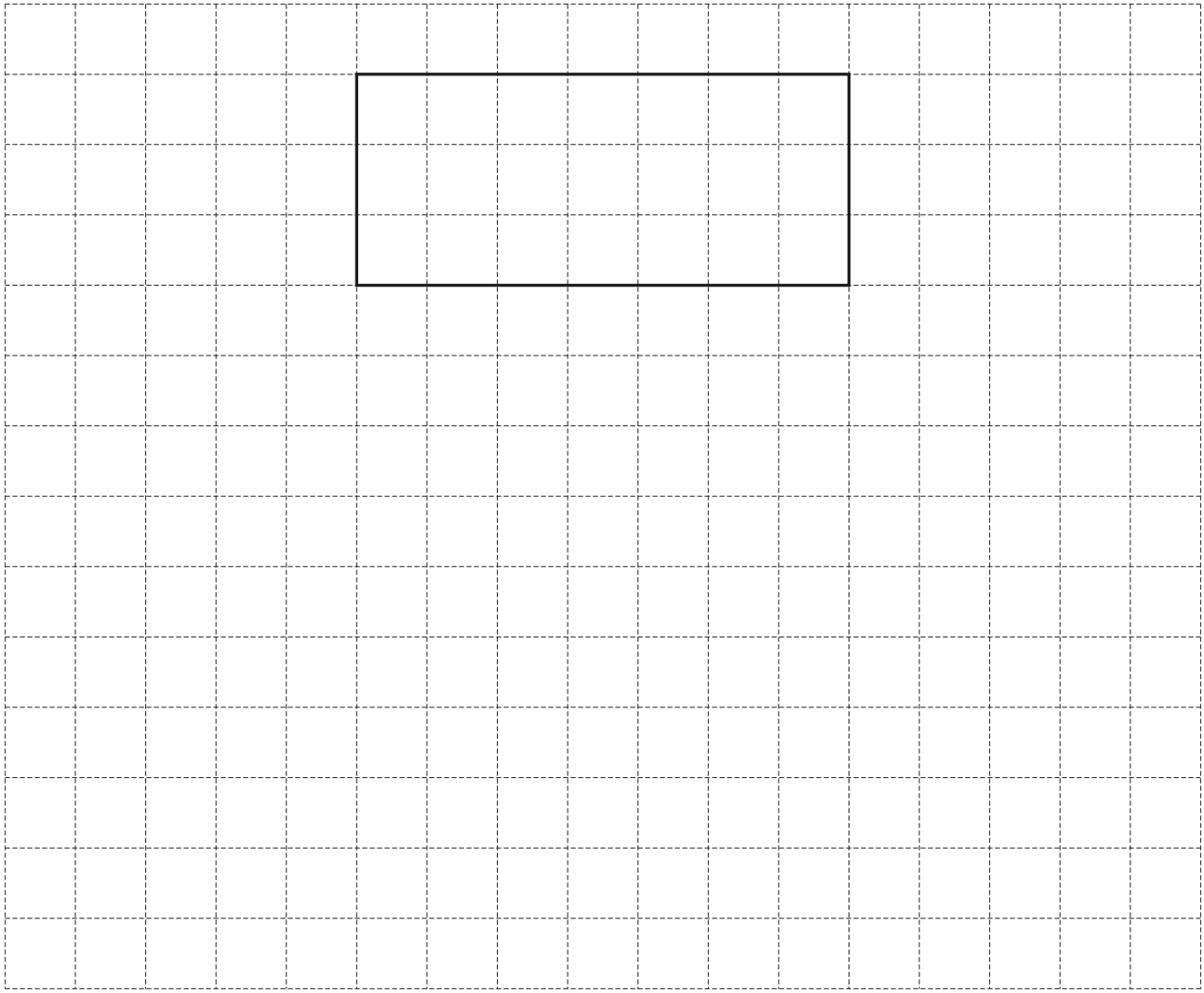
5



NOT TO SCALE

The diagram shows a right-angled triangular prism.

(a) On the 1 cm^2 grid, complete a net of this prism.
One face has been drawn for you.



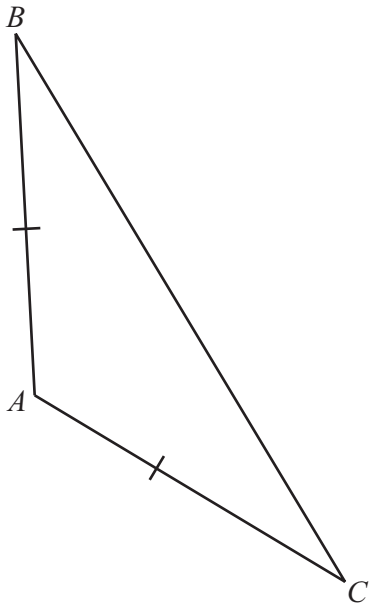
[4]

(b) Work out the volume of this prism.

..... cm^3 [2]

[Total: 6]

6



In triangle ABC, $AB = AC$.

(a) Write down the mathematical name for this type of triangle.

..... [1]

(b) Measure angle CAB.

Angle CAB = ... [1]

(c) Write down the mathematical name for angle CAB.

..... [1]

[Total: 3]

7 Kate describes a quadrilateral.

- All the sides are the same length.
- It has only two lines of symmetry.

(a) Draw a sketch of this quadrilateral.

[1]

(b) Write down the mathematical name for this quadrilateral.

..... [1]

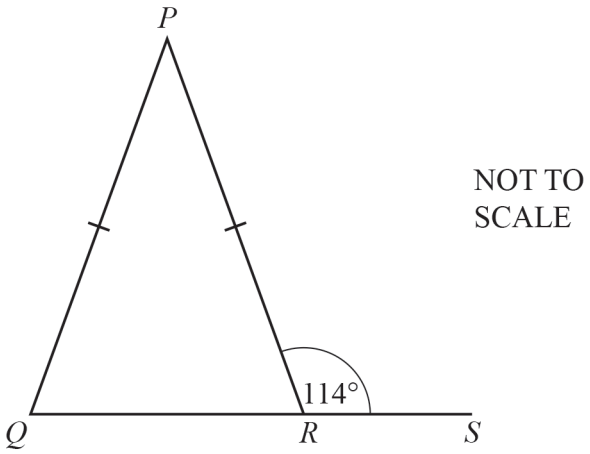
(c) One of the interior angles of this quadrilateral is 70°.

Work out the other three interior angles.

..... , ... , ... [2]

[Total: 4]

8



In the diagram, $PQ = PR$ and QRS is a straight line.

(a) Write down the mathematical name of triangle PQR.

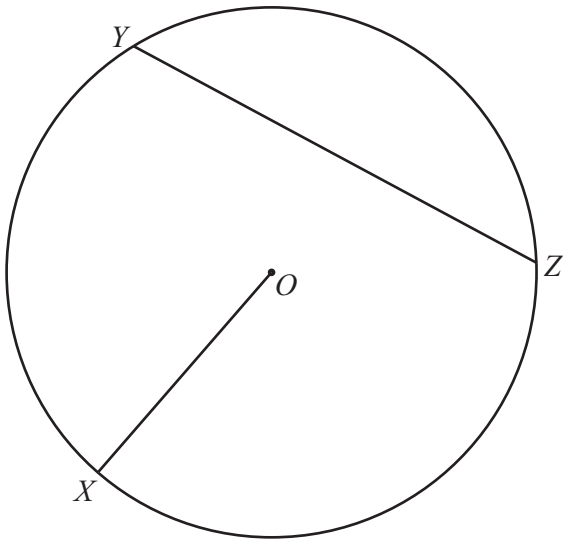
..... [1]

(b) Work out angle *QPR*.

Angle *QPR* = ... [3]

[Total: 4]

9



X, *Y* and *Z* lie on a circle, centre *O*.

Write down the mathematical name of the line

(a) *OX*,

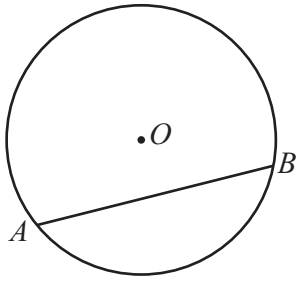
..... [1]

(b) *YZ*.

..... [1]

[Total: 2]

10



NOT TO SCALE

Points A and B lie on a circle, centre O.

(a) Write down the mathematical name for line AB.

..... [1]

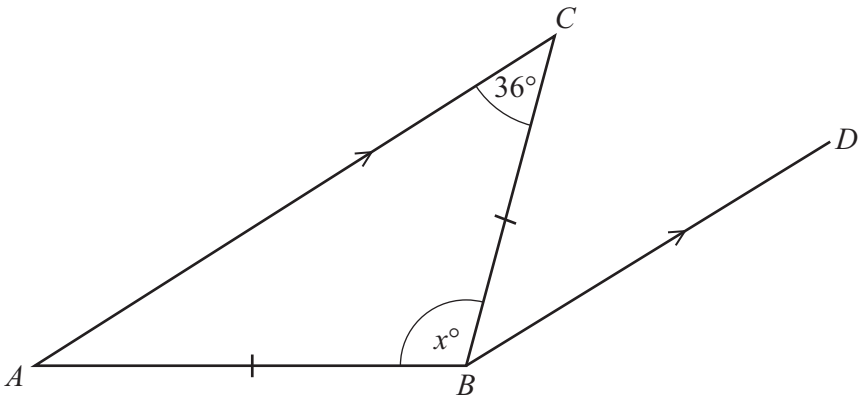
(b) The circle has a diameter of 16.8 cm.

Write down the radius of the circle.

.....cm [1]

[Total: 2]

11



NOT TO SCALE

The diagram shows a triangle *ABC* and a line *BD*.
AB = *BC* and *AC* is parallel to *BD*.

(a) Angle *ACB* = 36°.

Write down the mathematical name for this type of angle.

..... [1]

(b) Write down the mathematical name for triangle *ABC*.

..... [1]

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

x = ... [2]

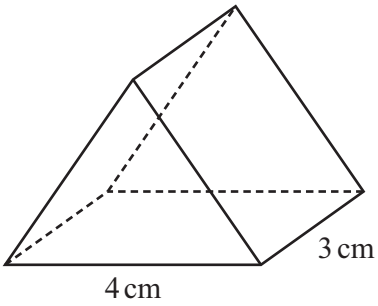
(d) Find angle *CBD*.
Give a geometrical reason for your answer.

Angle *CBD* = ... because .....

..... [2]

[Total: 6]

12



NOT TO SCALE

The diagram shows a prism.
The cross-section of the prism is an equilateral triangle.

Draw a net of the prism on the 1 cm^2 grid.

[3]

[Total: 3]

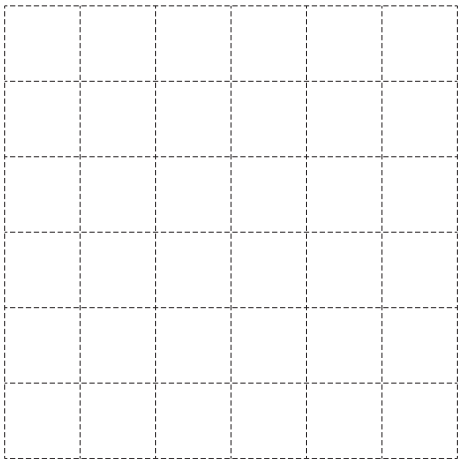
13 Write down two geometrical properties of a rhombus.

1. .....

2. ..... [2]

[Total: 2]

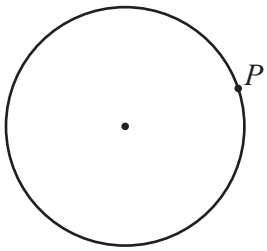
14 On the grid, draw a kite.



[1]

[Total: 1]

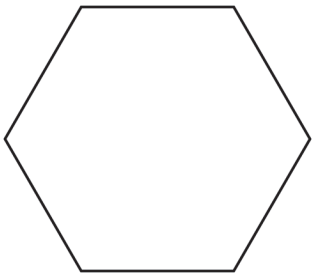
15



Draw a tangent to the circle at point *P*. [1]

[Total: 1]

16 The diagram shows a regular polygon.



(a) Write down the mathematical name for this shape.

..... [1]

(b) Write down the order of rotational symmetry of this shape.

..... [1]

[Total: 2]

17 In triangle PQR, $PR = 5$ cm and $QR = 4$ cm.

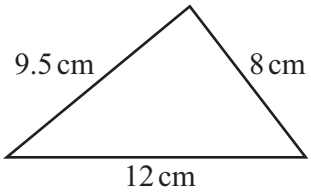
Using a ruler and compasses only, construct triangle PQR.
Leave in your construction arcs.
The side PQ has been drawn for you.



[2]

[Total: 2]

18



NOT TO SCALE

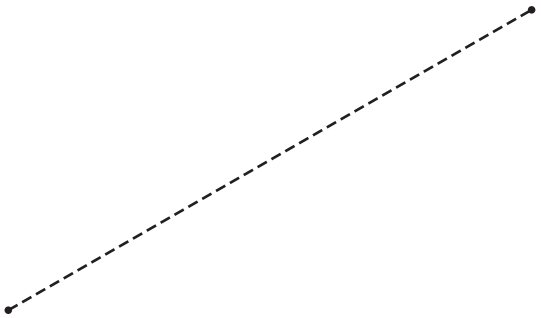
Using a ruler and compasses only, construct this triangle.
Leave in your construction arcs.

[2]

[Total: 2]

19 A rhombus has side length 6.5 cm.
The rhombus can be constructed by drawing two triangles.

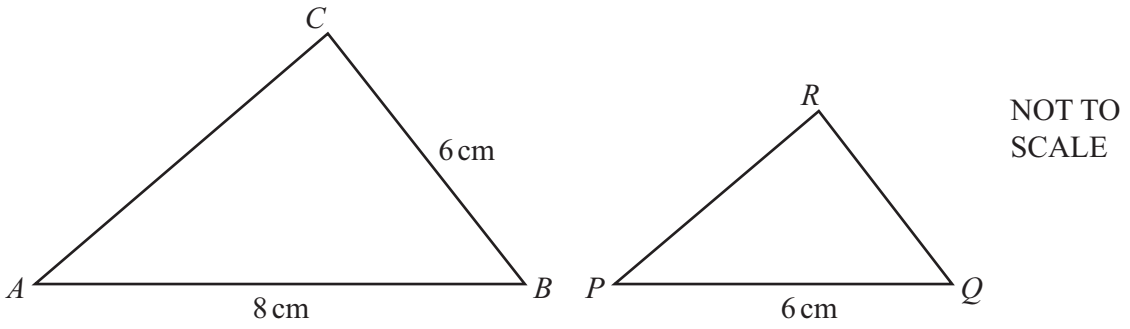
Using a ruler and compasses only, construct the rhombus.
Leave in your construction arcs.
One diagonal of the rhombus has been drawn for you.



[2]

[Total: 2]

20



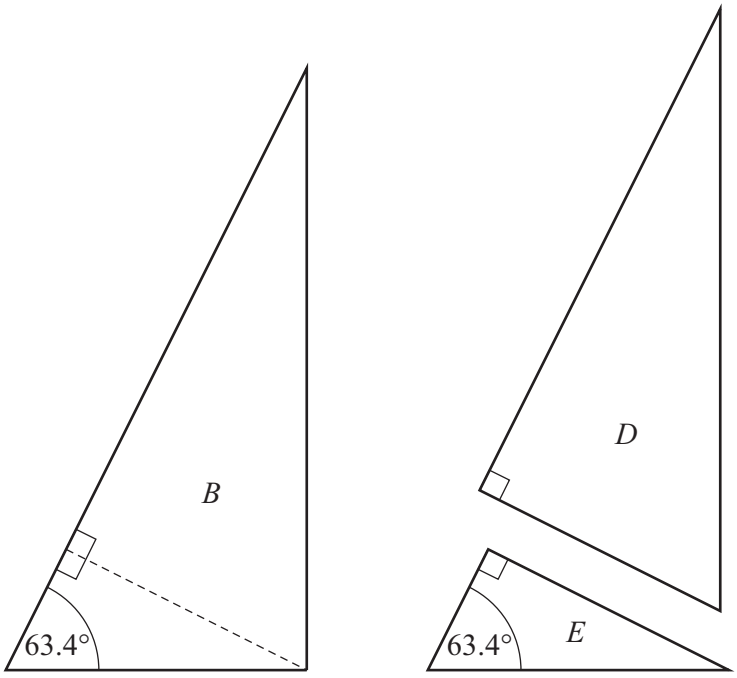
Triangle *ABC* is mathematically similar to triangle *PQR*.

Calculate *QR*.

QR = ... cm [2]

[Total: 2]

21



Two new triangles, *D* and *E*, are made from triangle *B*, as shown in the diagram.

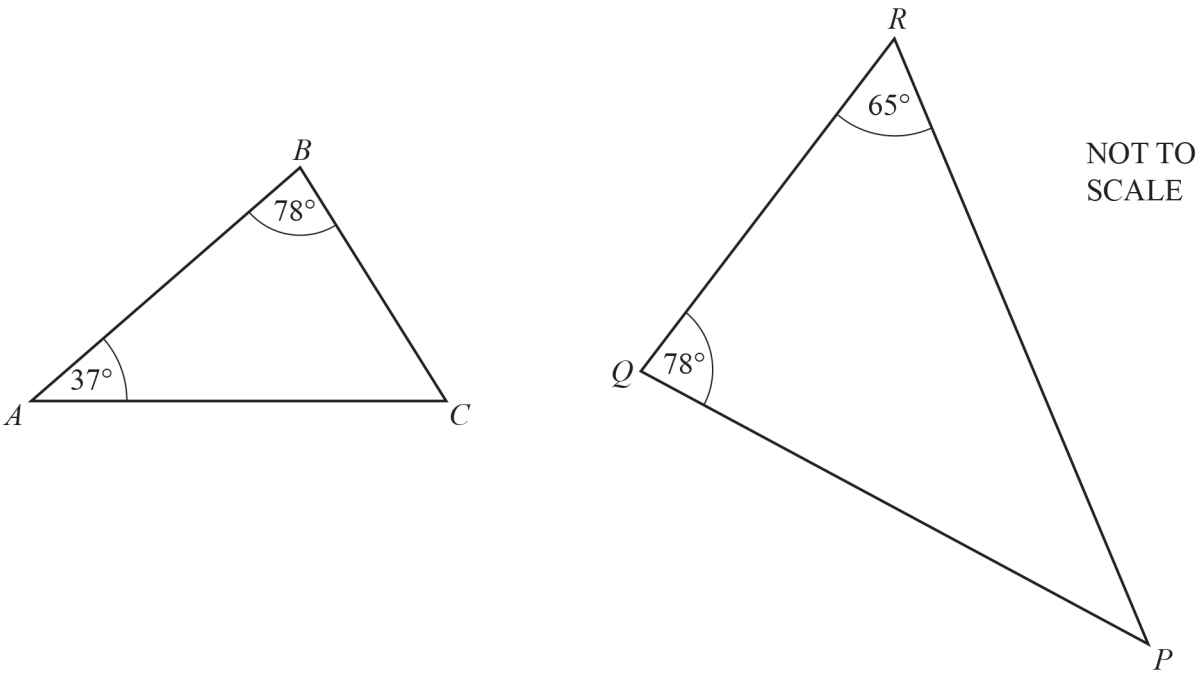
Are all three triangles similar?
Give a reason for your answer.

..... because .....

..... [2]

[Total: 2]

22



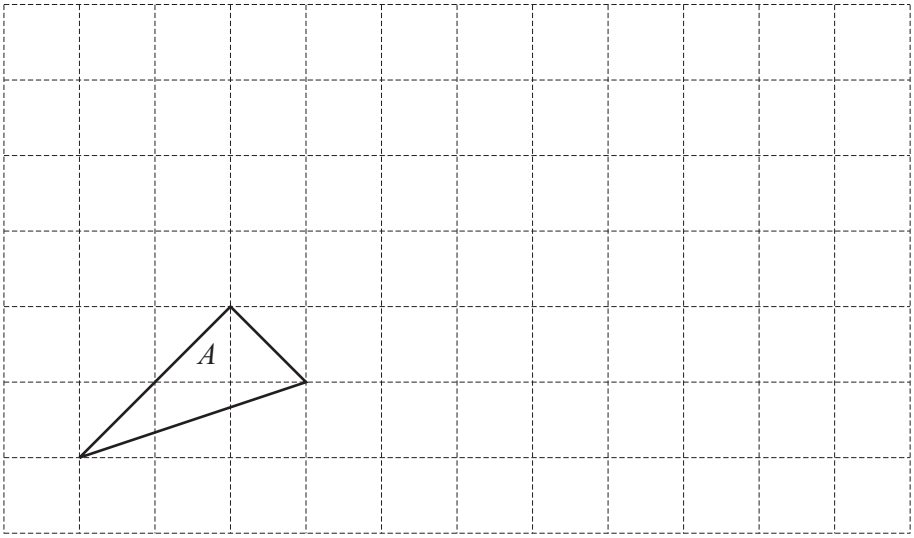
Explain why triangle *ABC* is similar to triangle *PQR*.

.....

..... [2]

[Total: 2]

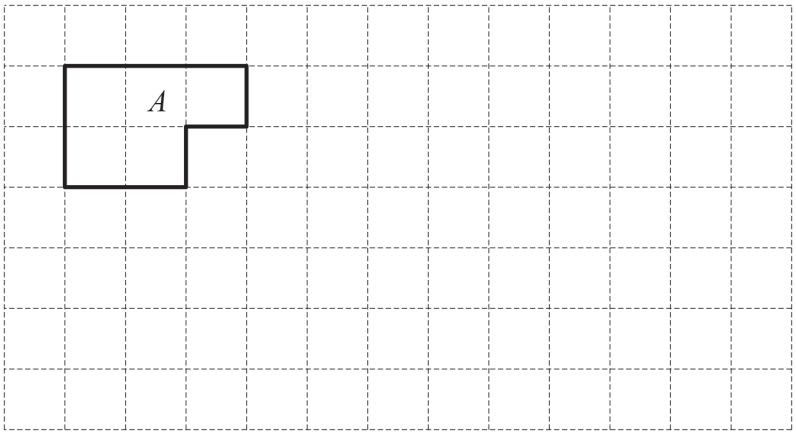
23 On the grid, draw a triangle that is congruent to triangle *A*.



[1]

[Total: 1]

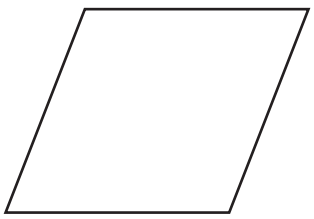
24



On the grid, draw a shape that is congruent to shape *A*. [1]

[Total: 1]

25



The diagram shows a rhombus.

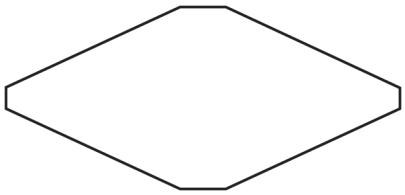
(a) Write down the order of rotational symmetry.

..... [1]

(b) On the diagram, draw all the lines of symmetry. [2]

[Total: 3]

26

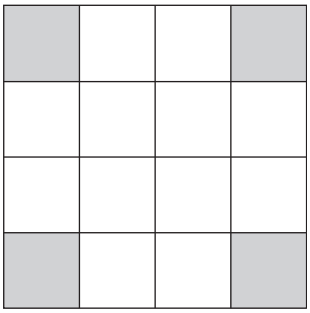


Write down the order of rotational symmetry of this shape.

..... [1]

[Total: 1]

27

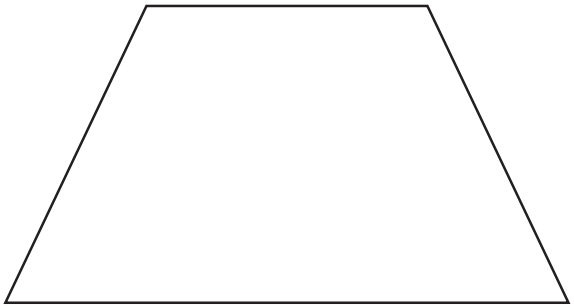


Write down the order of rotational symmetry of this diagram.

..... [1]

[Total: 1]

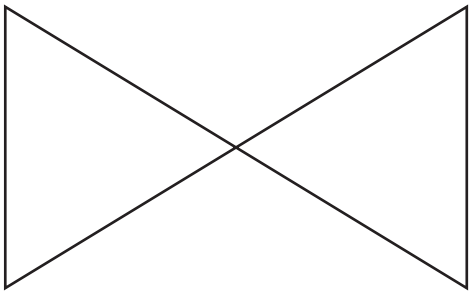
28



Draw the line of symmetry on this shape. [1]

[Total: 1]

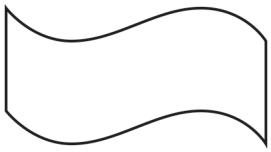
29



On the diagram, draw all the lines of symmetry. [2]

[Total: 2]

30

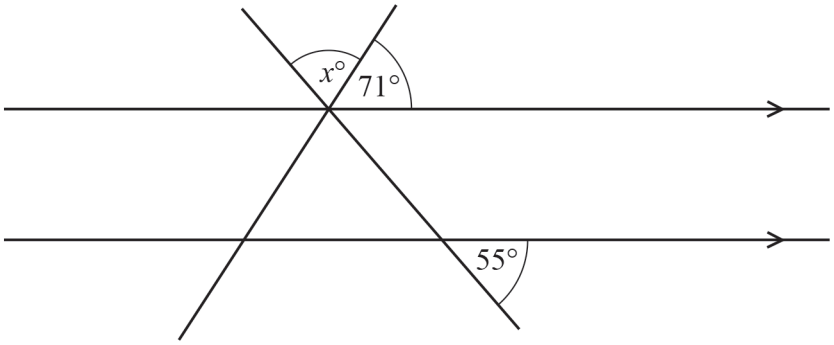


Write down the order of rotational symmetry of this shape.

..... [1]

[Total: 1]

31



NOT TO SCALE

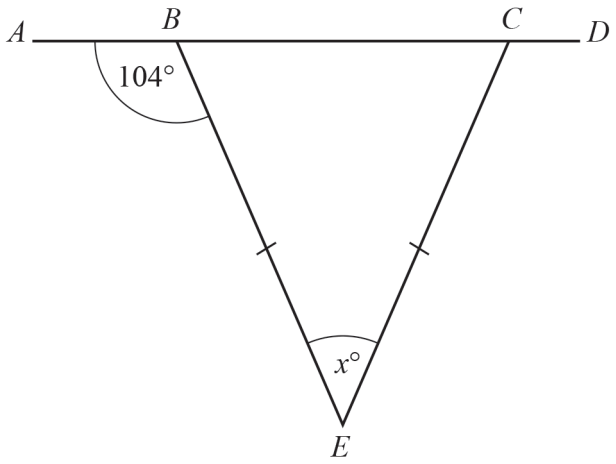
The diagram shows two straight lines intersecting two parallel lines.

Find the value of x.

x = ... [2]

[Total: 2]

32



NOT TO SCALE

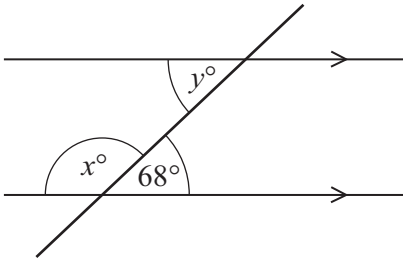
The diagram shows triangle *BCE* and a straight line *ABCD*.
BE = *CE* and angle *ABE* = 104°.

Find the value of *x*.

x = ... [2]

[Total: 2]

33



NOT TO SCALE

The diagram shows two parallel lines and a straight line crossing them.

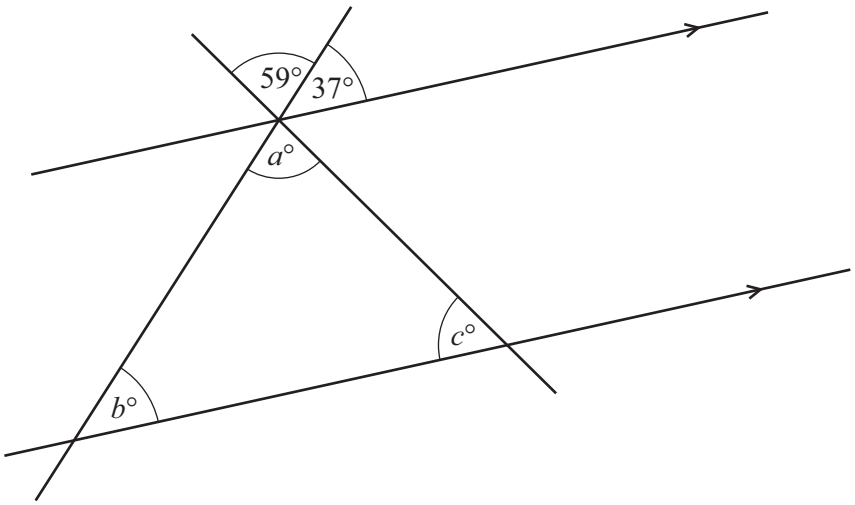
Find the value of *x* and the value of *y*.

x = ...

y = ... [2]

[Total: 2]

34



NOT TO SCALE

The diagram shows two parallel lines intersected by two straight lines.

Find the values of a, b and c.

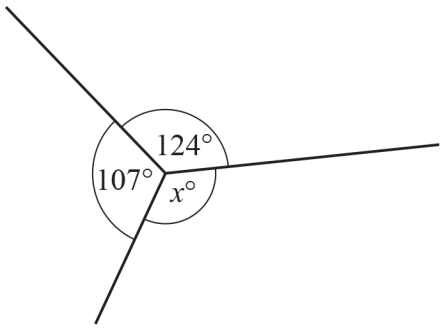
a = ...

b = ...

c = ... [3]

[Total: 3]

35



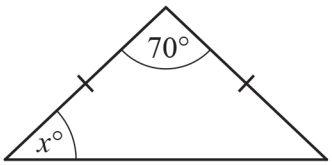
NOT TO SCALE

Work out the value of x.
Give a geometrical reason for your answer.

x = ... because ..... [2]

[Total: 2]

36



NOT TO SCALE

The diagram shows an isosceles triangle.

Find the value of x.

x = ... [2]

[Total: 2]

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1	Obtuse	**1**			
2	Cylinder	**1**			
3	Chord drawn	**1**			
4	6	**1**			
5(a)	Fully correct net	**4**		**B1** for 5×7 rectangle and **B2** for 3 correct faces in the correct places or **B1** for 1 or 2 correct faces in the correct places	
5(b)	42	**2**		**M1** for $\frac{1}{2} \times 4 \times 3 \times 7$ oe	
6(a)	Isosceles	**1**			
6(b)	124	**1**			
6(c)	Obtuse	**1**			
7(a)	Sketch of a rhombus	**1**			
7(b)	Rhombus cao	**1**			

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
7(c)	70, 110, 110	**2**		**B1** for 110 or **M1** for (360 – 70 – 70) ÷ 2 oe or **M1** for 70 + 70 + x + x = 360 oe soi	
8(a)	Isosceles	**1**			
8(b)	48	**3**		**M2** for 180 – 2 × (180 – 114) oe or **M1** for 180 – 114 or **B1** for PQR = 66 or PRQ = 66	
9(a)	Radius	**1**			
9(b)	Chord	**1**			
10(a)	Chord	**1**			
10(b)	8.4 oe	**1**			
11(a)	Acute	**1**			
11(b)	Isosceles	**1**			

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
11(c)	108	**2**		**B1** for angle *CAB* = 36° or **M1** for 180 – 2 × 36 or 180 – 72 oe	
11(d)	36 Alternate [angles]	**2**		**B1** for each	
12	Correct net	**3**		**B1** for one correct face drawn **B1** for 3 rectangles and 2 triangles drawn in correct places, but not the correct size	
13	Two correct geometrical properties	**2**		**B1** for 1 correct property	
14	Any kite drawn	**1**			
15	Ruled tangent drawn	**1**			
16(a)	Hexagon	**1**			
16(b)	6	**1**			

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
17	Correct triangle with correct arcs	**2**		**B1** for correct triangle with no arcs or incorrect arcs or two correct arcs If 0 scored, **SC1** for correct triangle and correct arcs but lines interchanged	
18	Correct triangle with arcs	**2**		**B1** for correct triangle with incorrect or no arcs or for two correct arcs or for a triangle with arcs but one side not in range	
19	Accurate construction of rhombus with sides 6.5 cm and correct construction arcs	**2**		**B1** for accurate diagram with no/wrong arcs or for one triangle (6.5 cm, 6.5 cm, 8 cm) correctly constructed with correct arcs or for four correct arcs	
20	4.5 oe	**2**		**M1** for $\frac{8}{6} = \frac{6}{QR}$ oe or better	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
21	Yes correct reason	**2**		**B1** for evidence that all three triangles each have angles 63.4°, 26.6° and 90° **B1** for yes and statement that triangles are similar because they have the same 3 angles oe	
22	**M1** for angle $ACB = 65°$ or angle $RPQ = 37°$ **A1** for 2 pairs of equal angles oe	**2**			
23	A congruent triangle drawn	**1**			
24	Correct shape drawn	**1**			
25(a)	2	**1**			
25(b)	2 correct lines and no extras	**2**		**B1** for 1 correct line and no extras or for 2 correct lines and one extra	
26	2	**1**			
27	4	**1**			
28	1 correct line of symmetry	**1**			

Question	Answer	Marks	AO Element	Notes	Guidance
29	2 correct lines	**2**		**B1** for each	
30	2	**1**			
31	54	**2**		**M1** for 180 – 71 – 55 oe or **B1** for 55 or 125 in a relevant correct position on the diagram	
32	28	**2**		**M1** for 180 – 104 oe	
33	[x =] 112 [y =] 68	**2**		**B1** for each	
34	[a =] 59 [b =] 37 [c =] 84	**3**		**B1** for each If 0 scored, **SC1** for *their* ($a + b + c$) = 180 if a, b, $c > 0$	
35	129 Angles at a point sum to 360 oe	**2**		**B1** for each	
36	55	**2**		**M1** for 180 – 70	
					[Total: 76]

Mensuration

© Cambridge University Press & Assessment 2024

1 Change 2.7 kilometres into metres.

..... m [1]

[Total: 1]

2 Change 5.3 kilometres into metres.

..... m [1]

[Total: 1]

3



On the 1 cm^2 grid, draw **one** rectangle that has

- a perimeter of 22 cm

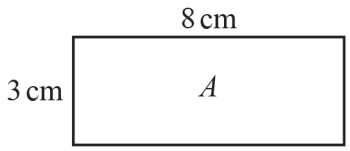
and

- an area of 24 cm^2.

[2]

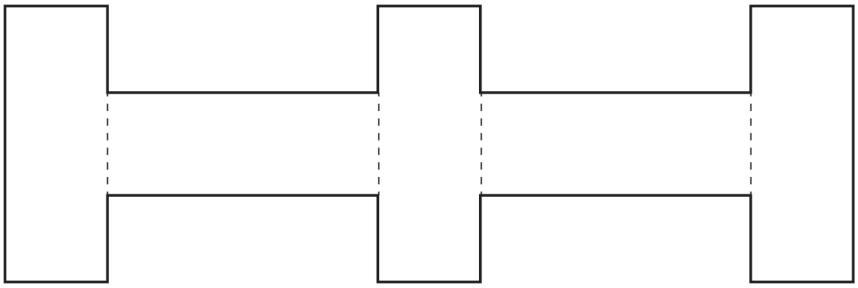
[Total: 2]

4 Rectangle A measures 3 cm by 8 cm.



NOT TO SCALE

Five rectangles congruent to A are joined to make a shape.



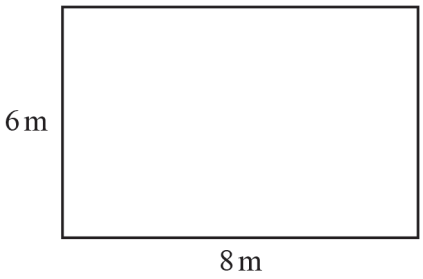
NOT TO SCALE

Work out the perimeter of this shape.

..... cm [2]

[Total: 2]

5



NOT TO SCALE

The diagram shows a rectangular patio with sides 6 m and 8 m.

(a) Work out the perimeter of the patio.

..... m [1]

(b) Henri covers the patio floor with square tiles.
The tiles are 0.5 m by 0.5 m.

Work out the number of tiles he needs.

..... [2]

[Total: 3]

6 A square has perimeter $12x$.

Find an expression, in terms of x, for the area of the square.
Give your answer in its simplest form.

..... [3]

[Total: 3]

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1	2700	**1**			
2	5300	**1**			
3	8 cm by 3 cm rectangle drawn	**2**		**B1** for rectangle with perimeter 22 or for rectangle with area 24 If no rectangle drawn, **SC1** for showing calculations that go together and satisfy either area = 24 or perimeter = 22	
4	86	**2**		**M1** for correct method to find the perimeter e.g. $(8 + 3) \times 2 \times 5 - 3 \times 8$ If 0 scored, **SC1** for answer 98	
5(a)	28	**1**			
5(b)	192	**2**		**M1** for $\frac{8}{0.5} \times \frac{16}{0.5}$ oe or **B1** for 16 and 12 or 4 tiles = 1 m^2 soi	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
6	$9x^2$	**3**		**M2** for $\left(\frac{12x}{4}\right)^2$ oe or **M1** for $\frac{12x}{4}$ oe If 0 scored, **SC1** for final answer kx^2	
					[Total: 12]

Trigonometry

© Cambridge University Press & Assessment 2024

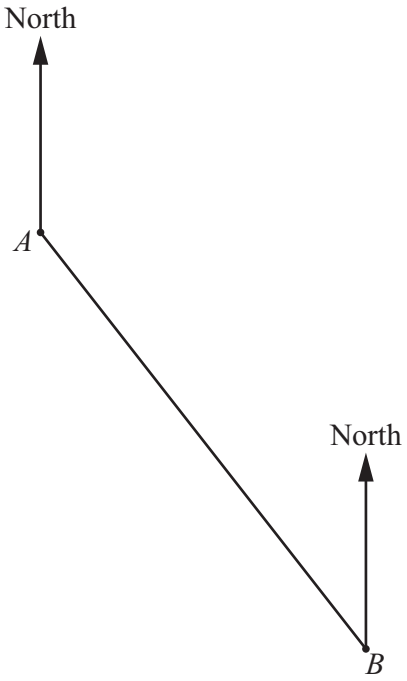
1 The bearing of A from B is 137°.

Find the bearing of B from A.

..... [2]

[Total: 2]

2

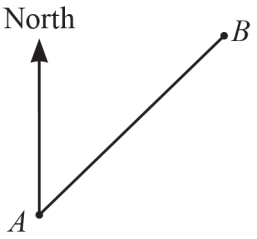


Measure the bearing of point B from point A.

..... [1]

[Total: 1]

3



NOT TO SCALE

The bearing of B from A is 059°.

Work out the bearing of A from B.

..... [2]

[Total: 2]

4 The scale drawing shows the positions of two towns, P and Q.
The scale is 1 cm represents 4 km.





Scale: 1 cm to 4 km

(a) Find the actual distance between town P and town Q.

..... km [2]

(b) Measure the bearing of town Q from town P.

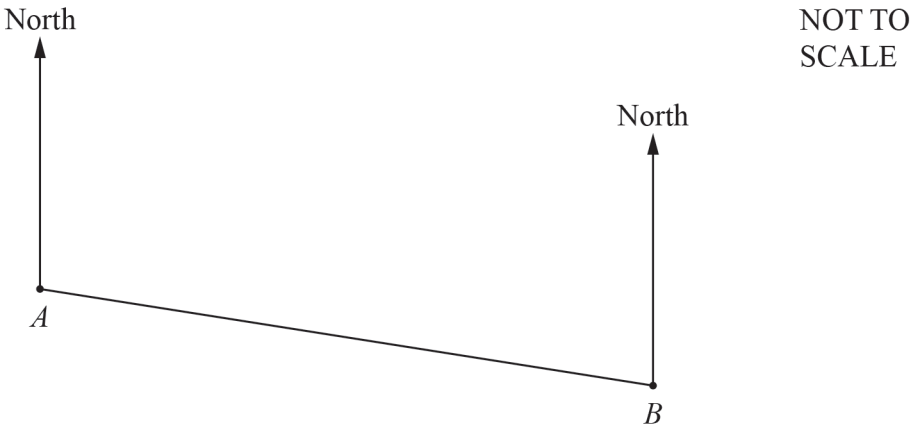
..... [1]

(c) Town X is 28 km from town P on a bearing of 140°.

On the scale drawing, mark the position of town X. [2]

[Total: 5]

5



The bearing of B from A is 105°.

Find the bearing of A from B.

..... [2]

[Total: 2]

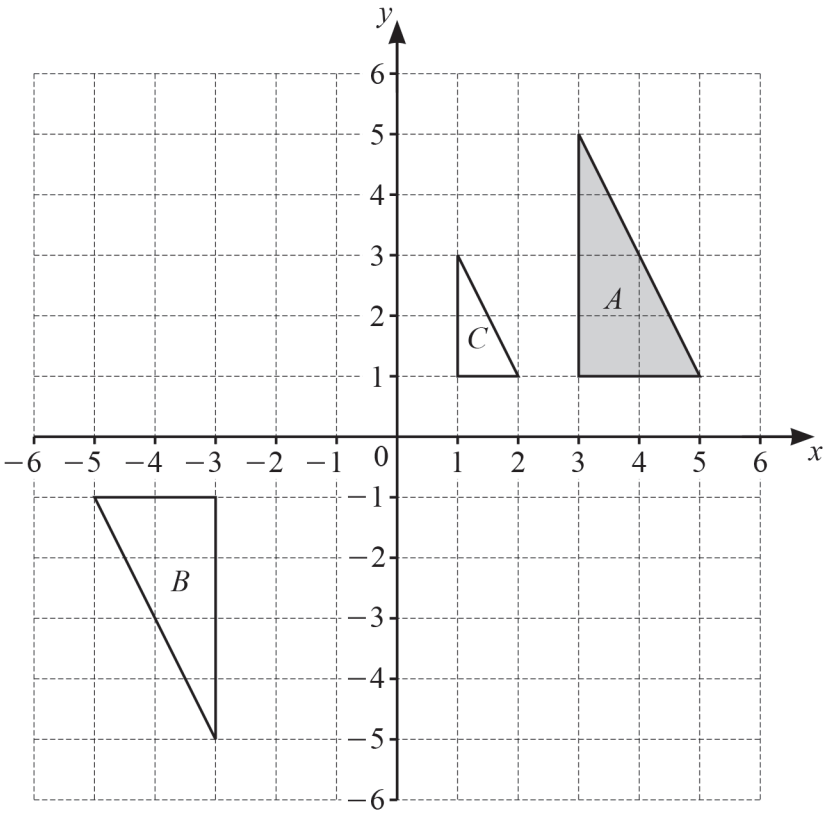
Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1	317	**2**		**M1** for 137 + 180 oe	
2	142°	**1**			
3	239	**2**		**M1** for $180 + 59$ or $360 - (180 - 59)$ oe or indicates correct angle on diagram	
4(a)	Measurement of PQ correctly scaled to km	**2**		**M1** for correct measurement of PQ in cm seen or for *their* measurement [in cm] multiplied by 4	
4(b)	065	**1**			
4(c)	X correctly placed 7 cm from P on a bearing of 140°	**2**		**M1** for X on bearing of 140° from P or for X 7 cm from P If 0 scored, **SC1** for X on bearing of 140° from Q and 7 cm from Q	
5	285	**2**		**M1** for 180 + 105 or 75 or 105 seen in correct position at B	
					[Total: 12]

Transformations and vectors

© Cambridge University Press & Assessment 2024

1 Triangles A, B and C are shown on the grid.



(a) Describe fully the **single** transformation that maps

(i) triangle A onto triangle B,

.....

..... [3]

(ii) triangle A onto triangle C.

.....

..... [3]

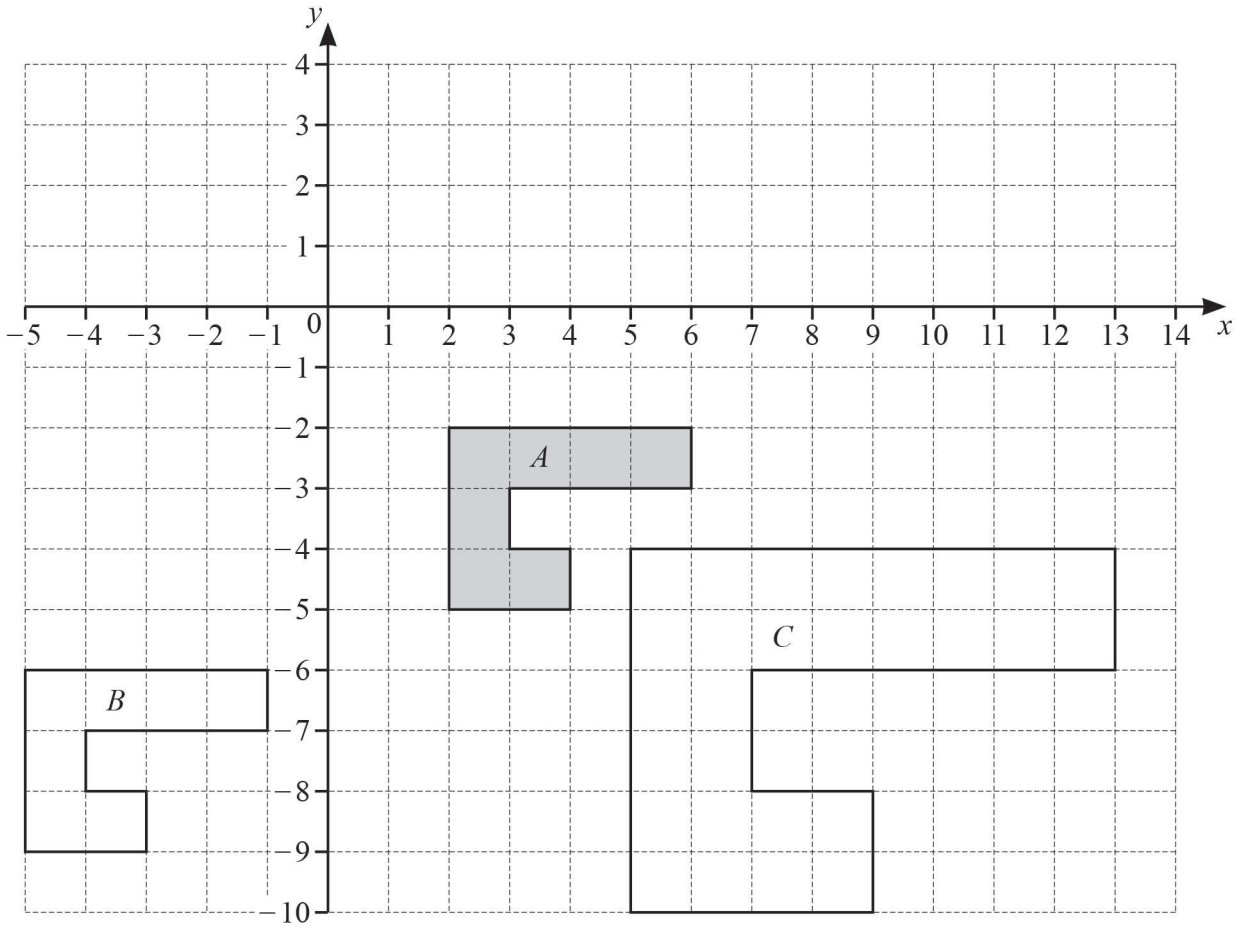
(b) On the grid,

(i) reflect triangle A in the line $y = 0$, [2]

(ii) translate triangle A by the vector $\begin{pmatrix} -7 \\ 1 \end{pmatrix}$. [2]

[Total: 10]

2 The grid shows three shapes, A, B and C.



(a) Describe fully the **single** transformation that maps

(i) shape A onto shape B,

.....

..... [2]

(ii) shape A onto shape C.

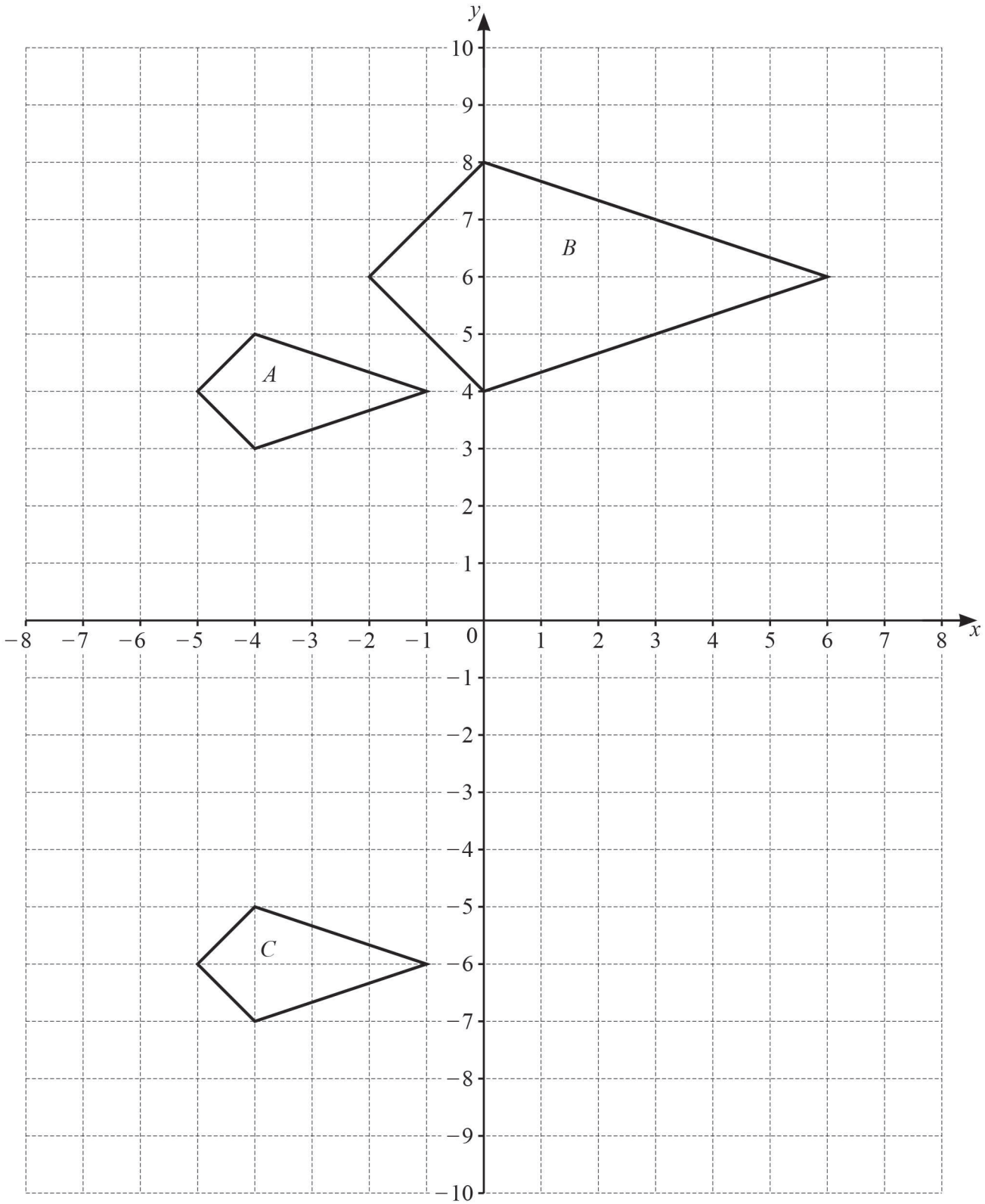
.....

..... [3]

(b) On the grid, draw the image of shape A after a rotation, 90° clockwise, centre (6, −3). [2]

[Total: 7]

3 The diagram shows three quadrilaterals on a 1 cm^2 grid.



(a) Write down the mathematical name of quadrilateral A.

..... [1]

(b) Find the area of quadrilateral A.

..... cm^2 [1]

(c) Describe fully the **single** transformation that maps quadrilateral A onto

(i) quadrilateral B,

.....

..... [3]

(ii) quadrilateral C.

.....

..... [2]

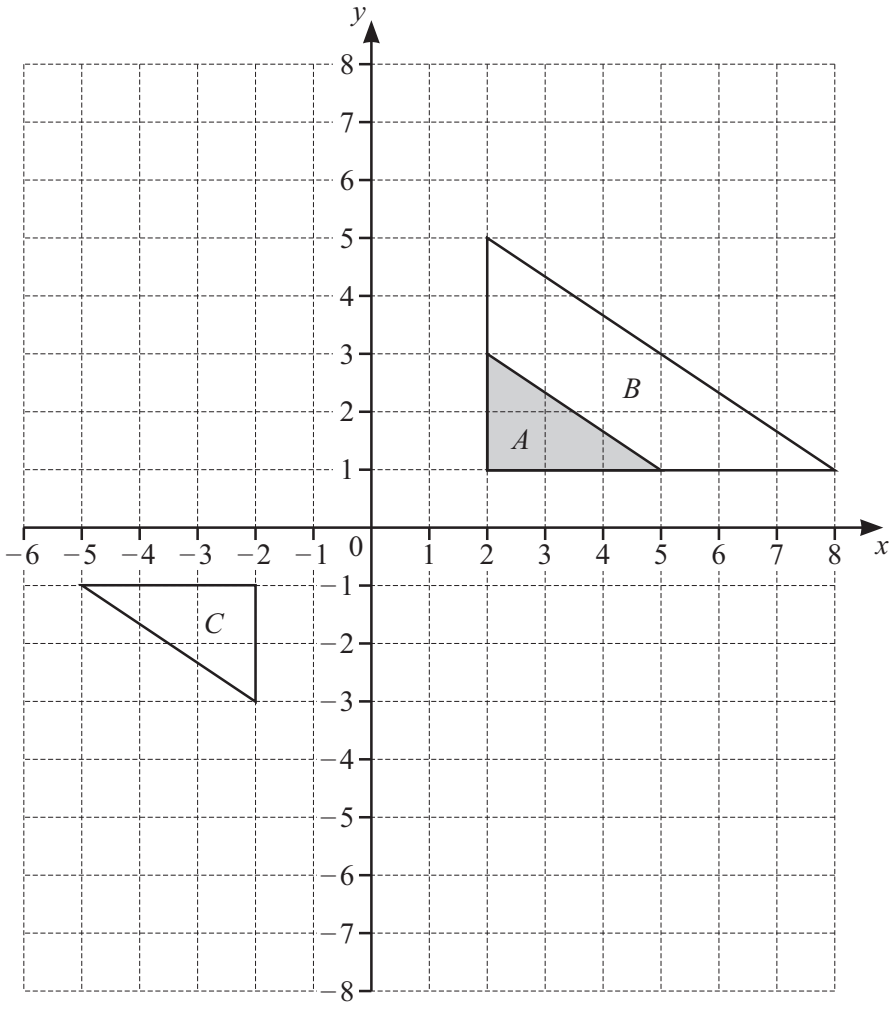
(d) On the grid, draw the image of

(i) quadrilateral C after a 90° anticlockwise rotation about the origin, [2]

(ii) quadrilateral C after a reflection in the line $x = 1$. [2]

[Total: 11]

4 The grid shows triangles A, B and C.



(a) Describe fully the **single** transformation that maps triangle A onto triangle B.

.....

..... [3]

(b) Describe fully the **single** transformation that maps triangle A onto triangle C.

.....

..... [3]

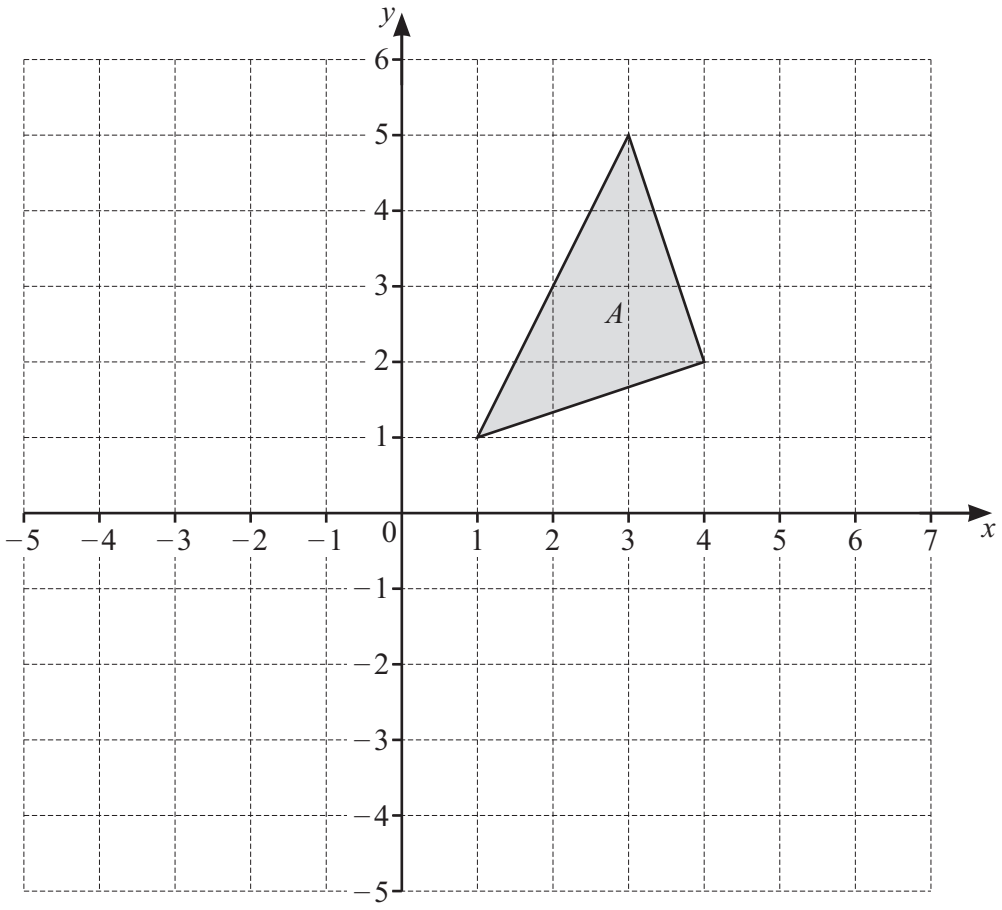
(c) Draw the image of

(i) triangle A after a translation by the vector $\begin{pmatrix} -5 \\ 3 \end{pmatrix}$, [2]

(ii) triangle A after a reflection in the line $y = -2$. [2]

[Total: 10]

5



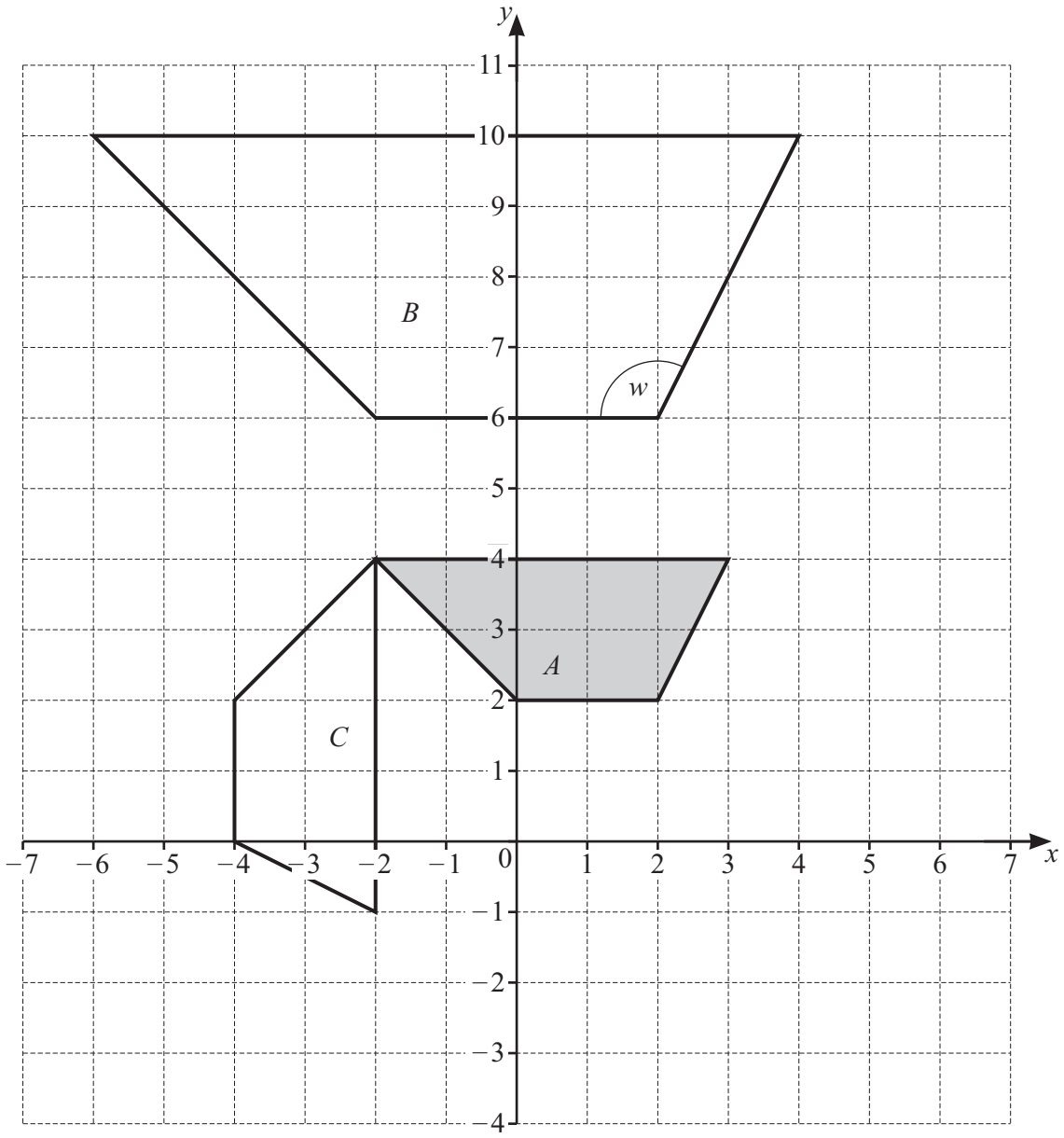
On the grid, draw the image of

(a) triangle A after a reflection in the y-axis, [1]

(b) triangle A after a translation by the vector $\begin{pmatrix} -3 \\ -4 \end{pmatrix}$. [2]

[Total: 3]

6 The diagram shows three quadrilaterals, A, B and C, on a 1 cm^2 grid.



(a) **(i)** Write down the mathematical name for quadrilateral B.

..... [1]

(ii) Work out the area of quadrilateral B.
Give the units of your answer.

.... [3]

(b) Measure angle w.

Angle w = ... [1]

(c) Describe fully the **single** transformation that maps

(i) quadrilateral A onto quadrilateral B,

.....

..... [3]

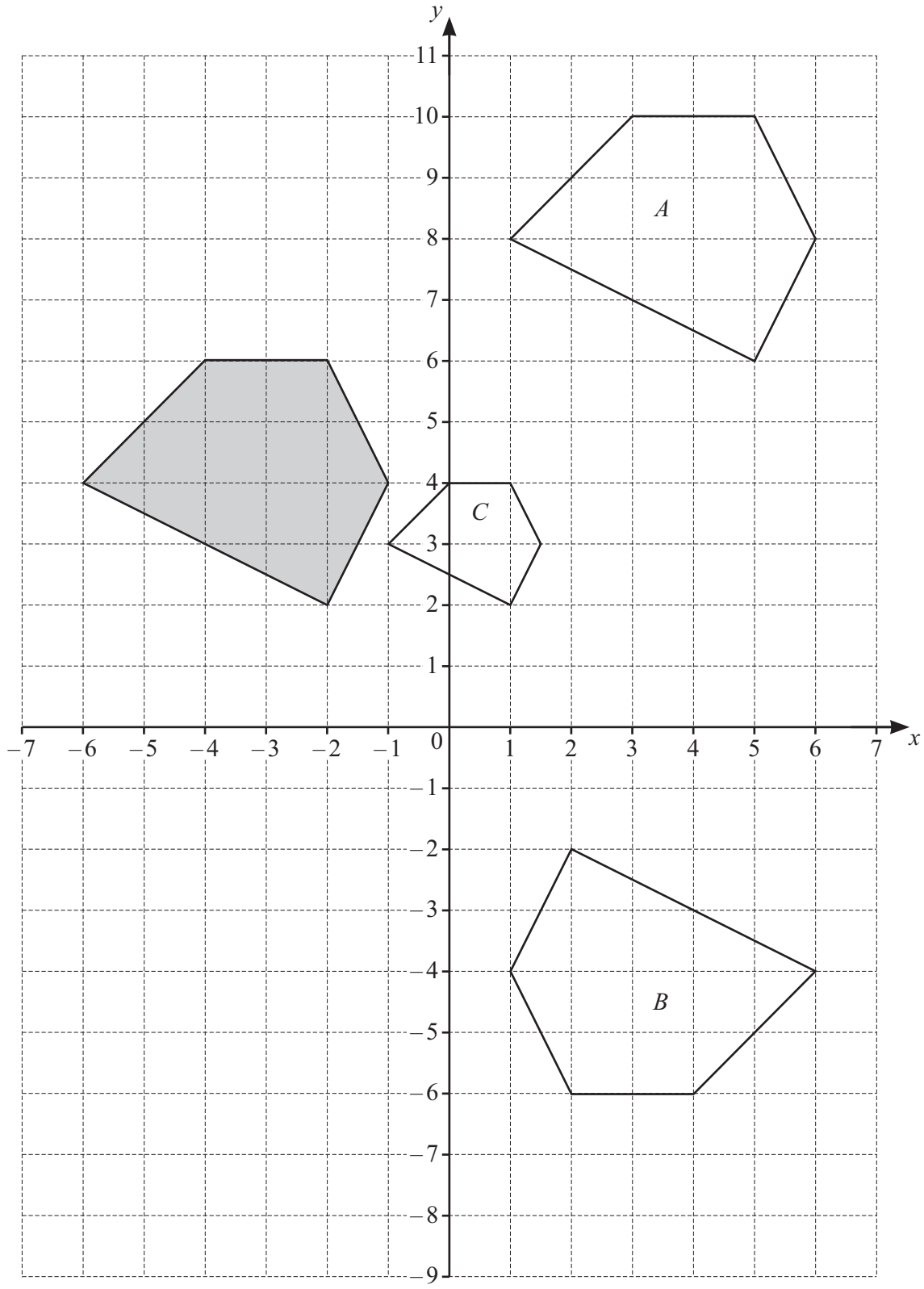
(ii) quadrilateral A onto quadrilateral C.

.....

..... [3]

[Total: 11]

7 The diagram shows four polygons on a 1 cm^2 grid.



(a) Write down the mathematical name of the shaded polygon.

..... [1]

(b) Find the area of the shaded polygon.

..... cm^2 [2]

(c) Describe fully the **single** transformation that maps

(i) the shaded polygon onto polygon *A*,

.....

..... [2]

(ii) the shaded polygon onto polygon *B*,

.....

..... [3]

(iii) the shaded polygon onto polygon *C*,

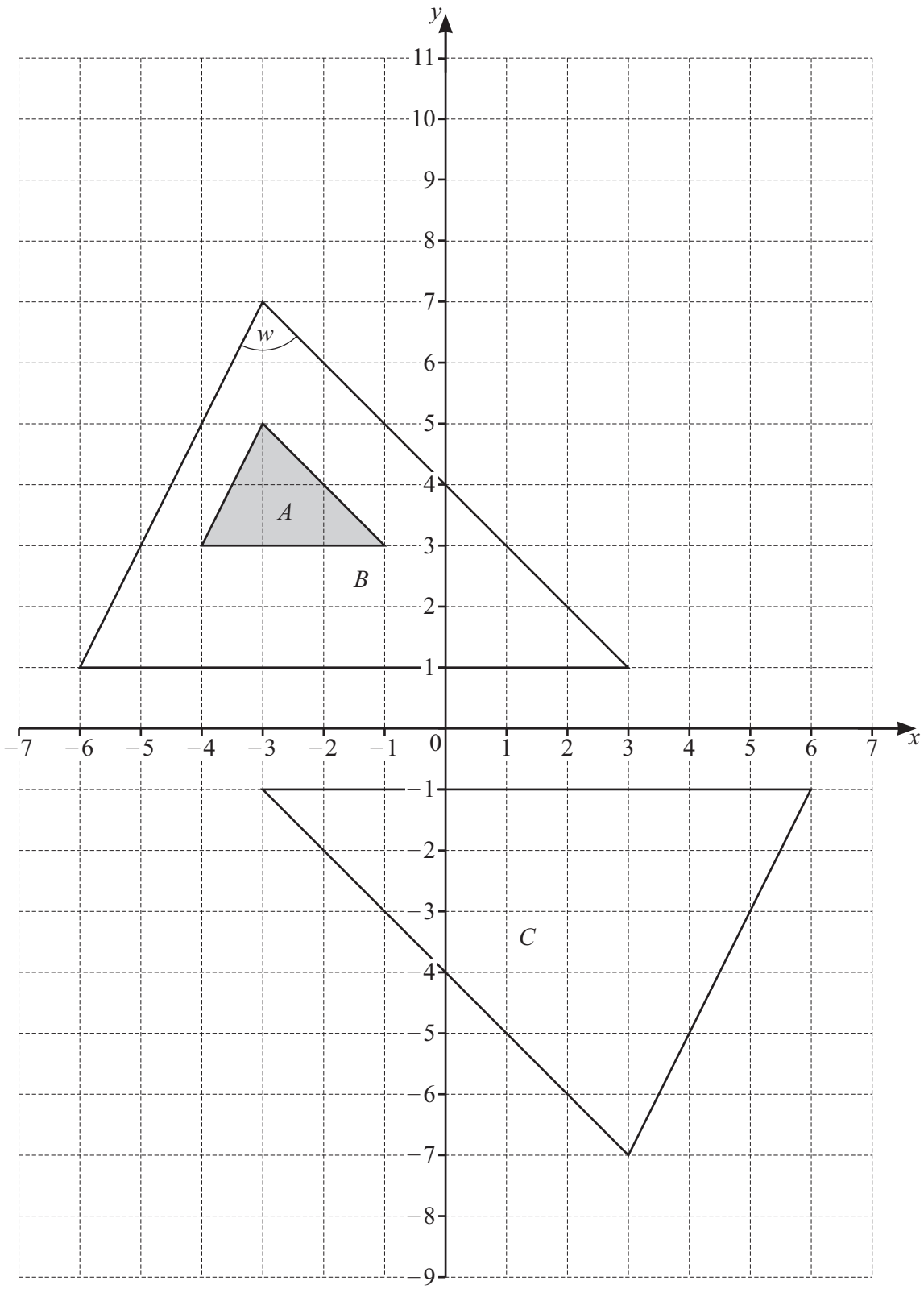
.....

..... [3]

(d) On the grid, draw the image of the shaded polygon after a reflection in the line $y = 0$. [2]

[Total: 13]

8 The diagram shows three triangles A, B and C on a grid.
Triangle A is shaded.



(a) Measure angle w.

Angle w = ... [1]

(b) Explain why triangle B is congruent to triangle C.

..... [1]

(c) Describe fully the **single** transformation that maps

(i) triangle A onto triangle B,

.....

..... [3]

(ii) triangle B onto triangle C.

.....

..... [3]

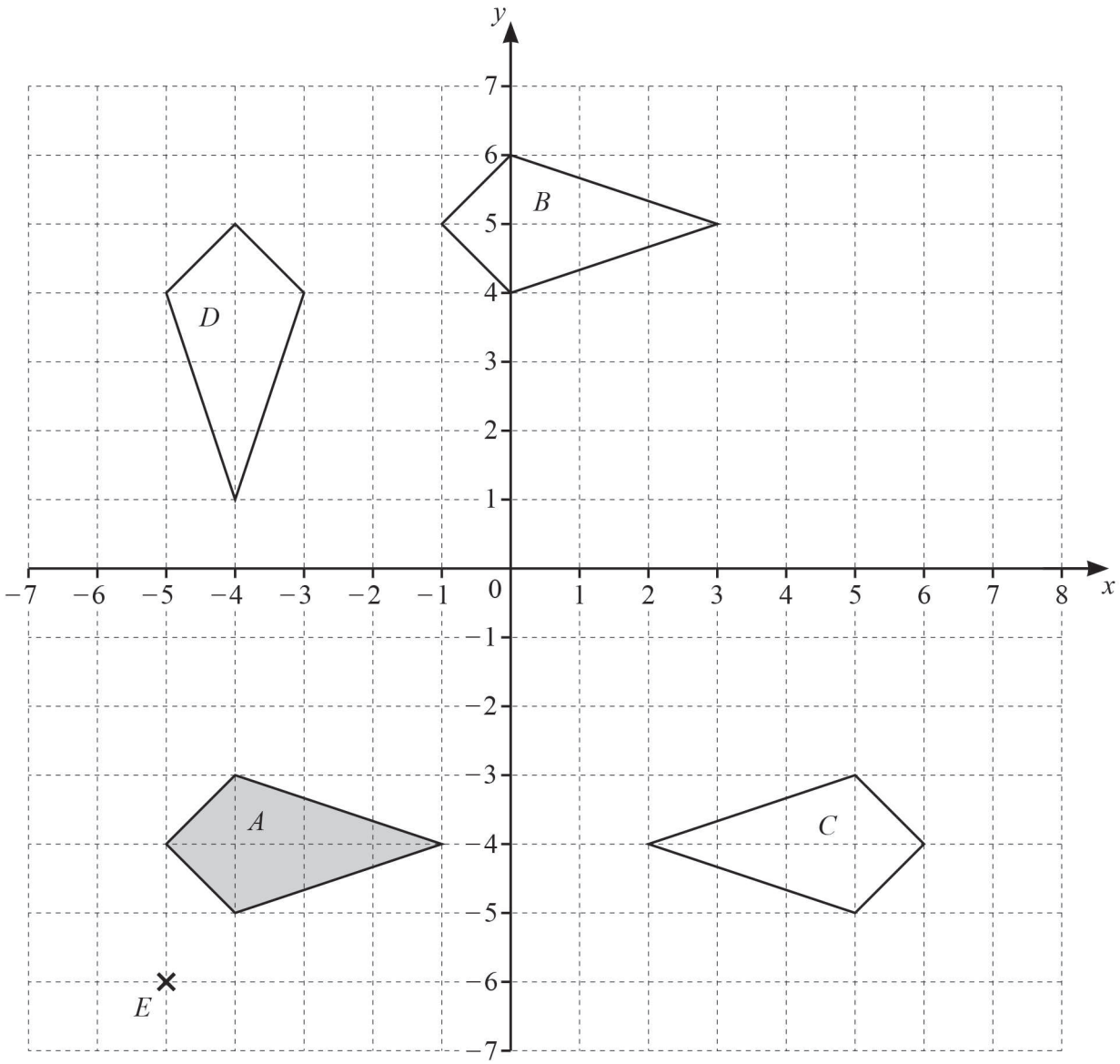
(d) On the grid, draw the image of

(i) triangle A after a translation by the vector $\begin{pmatrix} 7 \\ -1 \end{pmatrix}$, [2]

(ii) triangle A after a reflection in the line $y = -1$. [2]

[Total: 12]

9 The grid shows a point E and four quadrilaterals, A, B, C and D.



(a) Write down the mathematical name of shape A.

..... [1]

(b) Describe fully the **single** transformation that maps

(i) shape A onto shape B,

.....

..... [2]

(ii) shape *A* onto shape *C*,

.....

..... [2]

(iii) shape *A* onto shape *D*.

.....

..... [3]

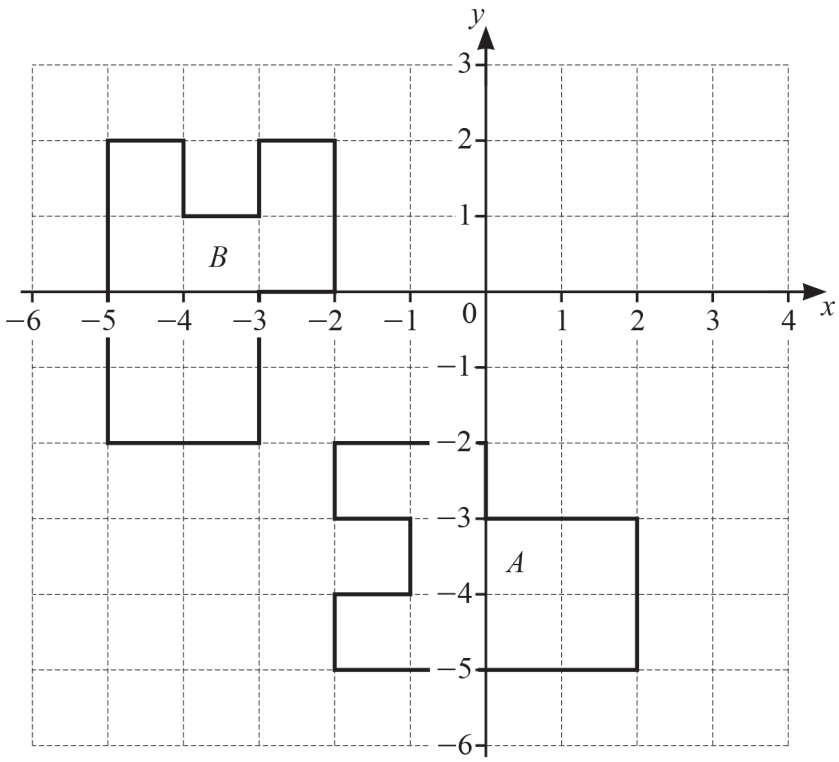
(c) **(i)** Write down the coordinates of the point *E*.

(..... , ...) [1]

(ii) On the grid, draw the image of shape *A* after an enlargement by scale factor 3, centre *E*. [2]

[Total: 11]

10



Describe fully the **single** transformation that maps shape *A* onto shape *B*.

.....

..... [3]

[Total: 3]

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1(a)(i)	Rotation 180° (0, 0)	**3**		**B1** for each	
1(a)(ii)	Enlargement 0.5 oe (− 1, 1)	**3**		**B1** for each	
1(b)(i)	Shape drawn at (3, −1), (5, −1), (3, −5)	**2**		**B1** for reflection in $x = 0$ or $y = k$	
1(b)(ii)	Shape drawn at (−4, 2), (−2, 2), (−4, 6)	**2**		**B1** for a translation by $\begin{pmatrix} -7 \\ k \end{pmatrix}$ or $\begin{pmatrix} k \\ 1 \end{pmatrix}$	
2(a)(i)	Translation $\begin{pmatrix} -7 \\ -4 \end{pmatrix}$	**2**		**B1** for each	
2(a)(ii)	Enlargement [centre] (−1, 0) [scale factor] 2	**3**		**B1** for each	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
2(b)	Shape correctly drawn at (6, –3) (7, –3) (7, 1) (4, 1) (4, –1) (5, –1) (5, 0) (6, 0)	**2**		**B1** for correct 90° anticlockwise rotation about (6, –3) or correct orientation but rotated about the wrong centre	
3(a)	Kite	**1**			
3(b)	4	**1**			
3(c)(i)	Enlargement [centre] (–8, 2) [scale factor] 2	**3**		**B1** for each	
3(c)(ii)	Translation $\begin{pmatrix} 0 \\ -10 \end{pmatrix}$ OR Reflection in $y = -1$ oe	**2**		**B1** for each	
3(d)(i)	Correct rotation (6, –1), (7, –4), (6, –5), (5, –4)	**2**		**B1** for a correct 90° clockwise rotation about (0, 0) or correct orientation, incorrect position	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
3(d)(ii)	Correct reflection (3, −6), (6, −5), (7, −6), (6, −7)	**2**		**B1** for a correct reflection in $y = 1$ or in $x = k$, $k \neq 1$	
4(a)	Enlargement [centre] (2, 1) [sf] 2	**3**		**B1** for each	
4(b)	Rotation [centre] (0, 0) 180°	**3**		**B1** for each	
4(c)(i)	Triangle at (–3, 4) (0, 4) (–3, 6)	**2**		**B1** for translation by $\begin{pmatrix} -5 \\ k \end{pmatrix}$ or $\begin{pmatrix} k \\ 3 \end{pmatrix}$	
4(c)(ii)	Triangle at (2, –5) (5, –5) (2, –7)	**2**		**B1** for reflection in $y = k$ ($k \neq -2$)	
5(a)	Triangle at (–1, 1) (–4, 2) (–3, 5)	**1**			
5(b)	Triangle at (–2, –3) (1, –2) (0, 1)	**2**		**B1** for translation by $\begin{pmatrix} -3 \\ k \end{pmatrix}$ or $\begin{pmatrix} k \\ -4 \end{pmatrix}$	
6(a)(i)	Trapezium	**1**			

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
6(a)(ii)	**B2** for 28 **B1** for cm^2	**3**		**M1** for a complete method from counting squares e.g. 8 + 16 + 4 or $\frac{(10 + 4)}{2} \times 4$ oe	
6(b)	117	**1**			
6(c)(i)	Enlargement [centre] (2, −2) [scale factor] 2	**3**		**B1** for each	
6(c)(ii)	Rotation [centre] (− 2, 4) 90° clockwise oe	**3**		**B1** for each	
7(a)	Pentagon	**1**			
7(b)	12	**2**		**B1** for 10 to 14	
7(c)(i)	Translation $\begin{pmatrix} 7 \\ 4 \end{pmatrix}$	**2**		**B1** for each	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
7(c)(ii)	Rotation [centre] (0, 0) oe 180°	**3**		**B1** for each	
7(c)(iii)	Enlargement [centre] (4, 2) [scale factor] 0.5 oe	**3**		**B1** for each	
7(d)	Correct reflection (−2, −2), (−1, −4), (−2, −6), (−4, −6) (−6, −4)	**2**		**B1** for a correct reflection in $x = 0$ or in $y = k$ $k \neq 0$ or for 4 correct points	
8(a)	72	**1**			
8(b)	Correct reason	**1**			
8(c)(i)	Enlargement [centre] (−3, 4) [scale factor] 3	**3**		**B1** for each	
8(c)(ii)	Rotation [centre] (0,0) oe 180° oe	**3**		**B1** for each	

Question	Answer	Marks	AO Element	Notes	Guidance
8(d)(i)	Correct translation (3, 2), (4, 4), (6, 2)	**2**		**B1** for translation $\begin{pmatrix} 7 \\ k \end{pmatrix}$ or $\begin{pmatrix} k \\ -1 \end{pmatrix}$	
8(d)(ii)	Correct reflection (−1, −5), (−3, −7), (−4, –5)	**2**		**B1** for reflection in $y = k$, $k \neq -1$ or in $x = -1$	
9(a)	Kite	**1**			
9(b)(i)	Translation $\begin{pmatrix} 4 \\ 9 \end{pmatrix}$	**2**		**B1** for each	
9(b)(ii)	Reflection $x = 0.5$ oe	**2**		**B1** for each	
9(b)(iii)	Rotation 90° clockwise oe [centre] (0, 0) oe	**3**		**B1** for each	
9(c)(i)	(−5, −6)	**1**			
9(c)(ii)	Image at (−5, 0), (−2, 3), (7, 0),(−2, −3)	**2**		**B1** for correct size, wrong position or correct shape with incorrect scale factor	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
10	Rotation clockwise 90° [centre] (0, 0)	**3**		**B1** for each	
					[Total: 91]

Probability

© Cambridge University Press & Assessment 2024

1 A 4-sided spinner is numbered 1, 2, 3 and 4.
The table shows the probability of the spinner landing on 1, 2 and 4.

Number	1	2	3	4
Probability	0.27	0.18		0.32

Complete the table.

[2]

[Total: 2]

2 The probability of picking a red sweet from a bag is 0.05 .

Find the probability of not picking a red sweet.

..... [1]

[Total: 1]

3 Francesca spins a four-sided spinner numbered 1, 2, 3 and 4.
The table shows some of the probabilities of landing on each number.

Number	1	2	3	4
Probability	0.18	0.21	0.37	

Complete the table.

[2]

[Total: 2]

4 The probability that Jane wins a game is $\frac{7}{10}$.

Find the probability that Jane does not win the game.

..... [1]

[Total: 1]

5 The probability that a train is late is 0.15 .

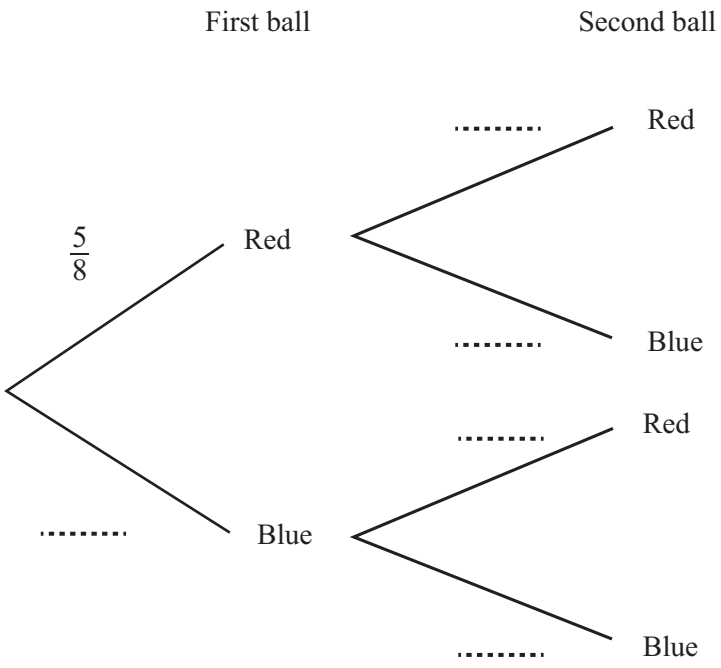
Write down the probability that the train is not late.

..... [1]

[Total: 1]

6 A bag contains 5 red balls and 3 blue balls.
Sophie takes a ball at random, notes its colour and then puts it back in the bag.
She does this a second time.

(a) Complete the tree diagram.



[2]

(b) Work out the probability that both of the balls she takes are blue.

..... [2]

[Total: 4]

7 On any day, the probability that Marcus will get a seat on the school bus is 0.93 .

(a) Write down the probability that he will **not** get a seat on the school bus today.

..... [1]

(b) There are 200 school days in a year.

Work out the expected number of days in a year that Marcus will **not** get a seat.

..... [1]

[Total: 2]

8 Paul has a set of 8 cards, each with a number written on it.
The numbers on the cards are 1, 1, 2, 3, 3, 3, 4, 5.
One card is taken at random.

Write down the probability that the number on the card is

(a) 1,

..... [1]

(b) an odd number,

..... [1]

(c) a prime number,

..... [1]

(d) a number less than 6.

..... [1]

[Total: 4]

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1	[0].23 oe	**2**		**M1** for 1 – [0].27 – [0].18 – [0].32 oe	
2	0.95 oe	**1**			
3	[0].24	**2**		**M1** for 1 – ([0].18 + [0].21 + [0].37)	
4	$\frac{3}{10}$ oe	**1**			
5	0.85 oe	**1**			
6(a)	5 probabilities $\left(\frac{3}{8}\right.$ and $\left.\frac{5}{8}\right)$ oe correctly on the branches	**2**		**B1** for $\frac{3}{8}$ on first branch towards Blue or one correct pair on the second branch	
6(b)	$\frac{9}{64}$ oe	**2**		**FT** *their* tree diagram for 2 marks **M1** for *their* $\frac{3}{8}$ × *their* $\frac{3}{8}$	
7(a)	0.07	**1**			
7(b)	14	**1**		**FT** *their* **(a)**	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
8(a)	$\frac{1}{4}$ oe	**1**			
8(b)	$\frac{3}{4}$ oe	**1**			
8(c)	$\frac{5}{8}$	**1**			
8(d)	1	**1**			
					[Total: 17]

Statistics

© Cambridge University Press & Assessment 2024

1 Antonio has a shop near the beach.

(a) He makes a tally of the number of ice creams he sells on Friday.



Work out the number of ice creams he sells on Friday.

..... [1]

(b) 15 of the ice creams he sells on Friday are vanilla.

Work out the fraction of ice creams he sells on Friday that are vanilla.
Give your answer in its simplest form.

..... [1]

[Total: 2]

2 Mahika records how 120 students from Year 1 and Year 2 travel to school.
Each student walks, cycles or travels by bus.

- 48 students are in Year 1.
- 77 students walk.
- 5 students in Year 2 cycle.
- 36 students travel by bus.
- $\frac{4}{9}$ of the students who travel by bus are in Year 1.

(a) Complete the table.

	Walk	Cycle	Bus	Total
Year 1				
Year 2				
Total				120

[3]

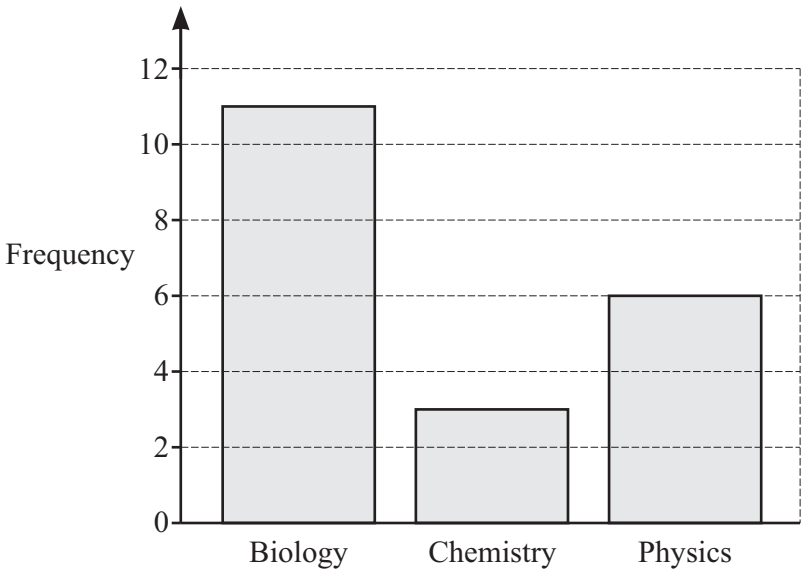
(b) One of the 120 students is chosen at random.

Work out the probability that this student does not travel by bus to school.

..... [2]

[Total: 5]

3 20 students choose their favourite science subject.
The results are shown in the bar chart.



(a) Work out how many more students choose biology than physics.

..... [1]

(b) Write down the fraction of students whose favourite science subject is chemistry.

..... [1]

(c) One of the 20 students is picked at random.

Write down the probability that this student did **not** choose biology.

..... [2]

(d) Only **one** of the averages, median, mode and mean can be found for these results.

(i) Write down the average that can be found.

..... [1]

(ii) Find this average for these results.

..... [1]

(iii) Explain why the range cannot be found.

..... [1]

[Total: 7]

4 The stem-and-leaf diagram shows the journey time to school of some students.

1	3	5	7	9	9
2	3	4	5		
3	0	3	4	6	7
4	2	4	5	8	

Key: 1|3 represents 13 minutes

Find

(a) the number of students with a journey time of more than 35 minutes,

..... [1]

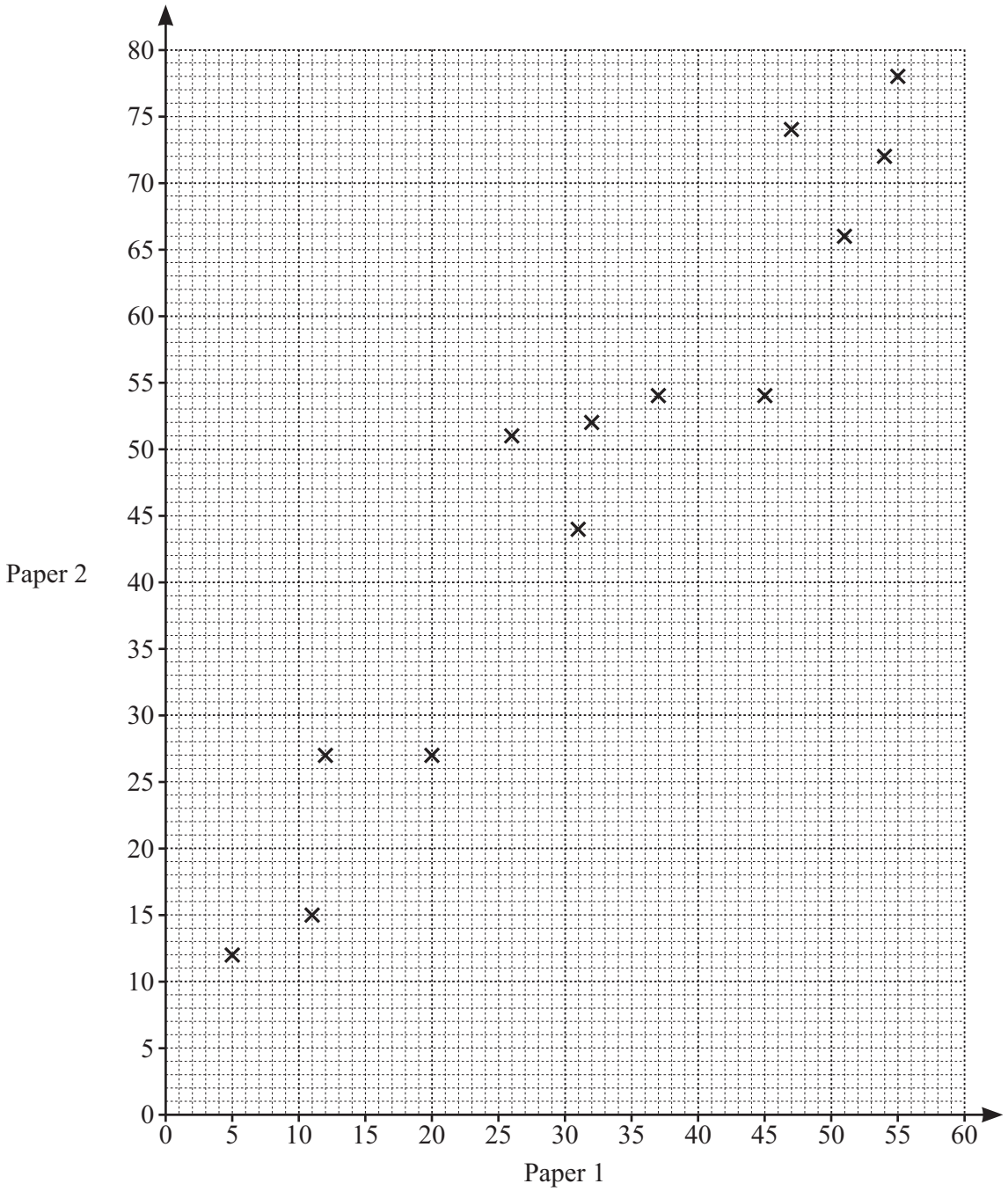
(b) the mode.

..... min [1]

[Total: 2]

5 A class of 15 students take two tests in science, paper 1 and paper 2.
The scores for each student are shown in the table.

Paper 1	5	11	12	20	26	31	32	37	45	47	51	54	55	23	42
Paper 2	12	15	27	27	51	44	52	54	54	74	66	72	78	30	58



(a) Complete the scatter diagram.
The first thirteen points have been plotted for you.

[1]

(b) What type of correlation is shown in the scatter diagram?

..... [1]

(c) On the grid, draw a line of best fit. [1]

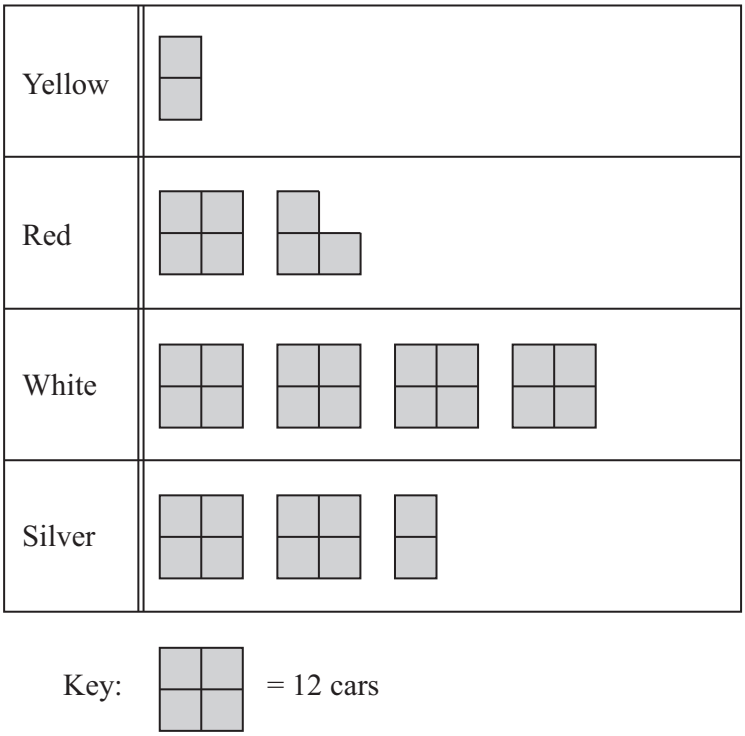
(d) Another student scores 24 on paper 1.

Use your line of best fit to find an estimate for their score on paper 2.

..... [1]

[Total: 4]

6 The pictogram shows the number of different coloured cars a garage sells in a month.

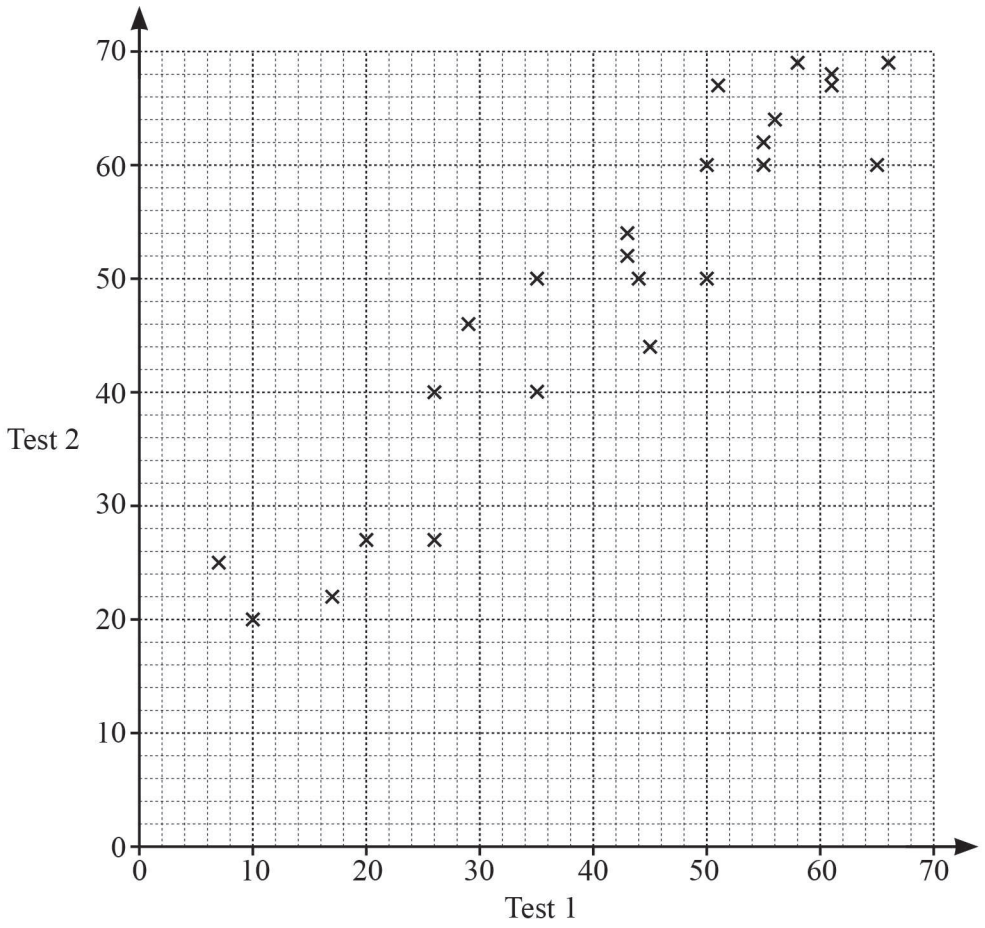


Work out how many more white cars than red cars the garage sells.

..... [1]

[Total: 1]

7 Mrs Salaman gives her class two mathematics tests.
The scatter diagram shows information about the marks each student scored.



(a) Write down the highest mark scored on test 1.

..... [1]

(b) Write down the type of correlation shown in the scatter diagram.

..... [1]

(c) Draw a line of best fit on the scatter diagram. [1]

(d) Hamish scored a mark of 40 on test 1.
He was absent for test 2.

Use your line of best fit to find an estimate for his mark on test 2.

..... [1]

[Total: 4]

8 Emma has 15 mathematics questions to complete.
The stem-and-leaf diagram shows the time, in minutes, it takes her to complete each question.

0	3	5	6	7	7	8	8
1	1	2	2	3	6	6	6
2	0						

Key: 2 | 0 = 20 minutes

Complete the table.

Mode	.....min
Median	.....min
Range	.....min

[3]

[Total: 3]

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1(a)	48	**1**			
1(b)	$\frac{5}{16}$ cao	**1**		**FT** *their* **(a)** provided simplification required and answer given in its simplest form	
2(a)	30 2 16 48 47 5 20 72 77 7 36 120	**3**		**B2** for 9 or 10 correct or **B1** for 5, 6, 7 or 8 correct	
2(b)	$\frac{7}{10}$ oe	**2**		**M1** for $\frac{120 - 36}{120}$ oe or **B1** for 84 or for *their* 77 + *their* 7	
3(a)	5	**1**			
3(b)	$\frac{3}{20}$ cao	**1**			
3(c)	$\frac{9}{20}$ oe	**2**		**M1** for $1 - \frac{11}{20}$ or 20 – 11 or 3 + 6 oe	
3(d)(i)	Mode	**1**			

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
3(d)(ii)	Biology	**1**			
3(d)(iii)	Correct reason	**1**			
4(a)	6	**1**			
4(b)	19	**1**			
5(a)	2 points correctly plotted	**1**			
5(b)	Positive	**1**			
5(c)	A ruled line of best fit within tolerance	**1**			
5(d)	32 – 42	**1**		**FT** *their* ruled line with positive gradient	
6	27	**1**			
7(a)	66	**1**			
7(b)	Positive	**1**			
7(c)	Ruled line of best fit	**1**			
7(d)	46 to 50	**1**		**FT** *their* line of best fit if a positive gradient	

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
8	Mode 16 Median 11 Range 17	**3**		**B1** for each	
					[Total: 28]

Cambridge International Education
The Triangle Building, Shaftesbury Road, Cambridge, CB2 8EA, United Kingdom
t: +44 1223 553554
e: info@cambridgeinternational.org www.cambridgeinternational.org

© Cambridge University Press & Assessment 2024