

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

I declare this is my own work.

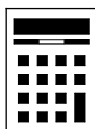
C

Core Tier Paper 1C

Wednesday 6 November 2024 07:00 GMT Time allowed: 1 hour 30 minutes

For this paper you must have:

- a calculator
- mathematical instruments.



- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- If your calculator does not have a π button, take the value of π to be 3.142

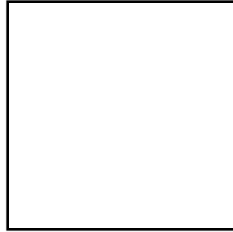
Show all necessary working; otherwise marks for method may be lost.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26–27	
28–29	
TOTAL	



Answer **all** questions in the spaces provided.

- 1** Here is a square.



How many lines of symmetry does a square have?

[1 mark]

Answer _____

- 2 (a)** Complete the equivalent fraction.

[1 mark]

$$\frac{2}{5} = \frac{12}{\boxed{}}$$

- 2 (b)** Work out $\frac{3}{7}$ of 56

[1 mark]

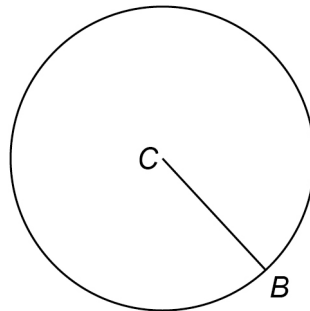
Answer _____



3

B is a point on a circle.

C is the centre of the circle.



Complete the sentence.

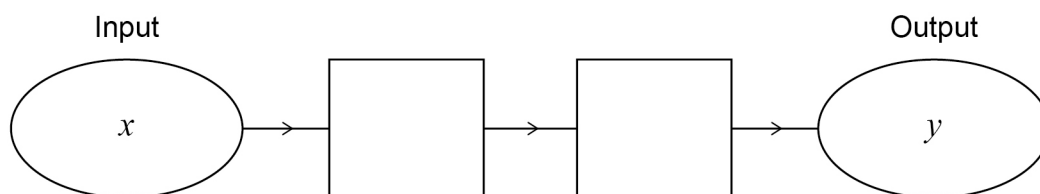
[1 mark]

The line BC is a _____ of the circle.

4

Complete the number machine so that $y = 3x - 5$

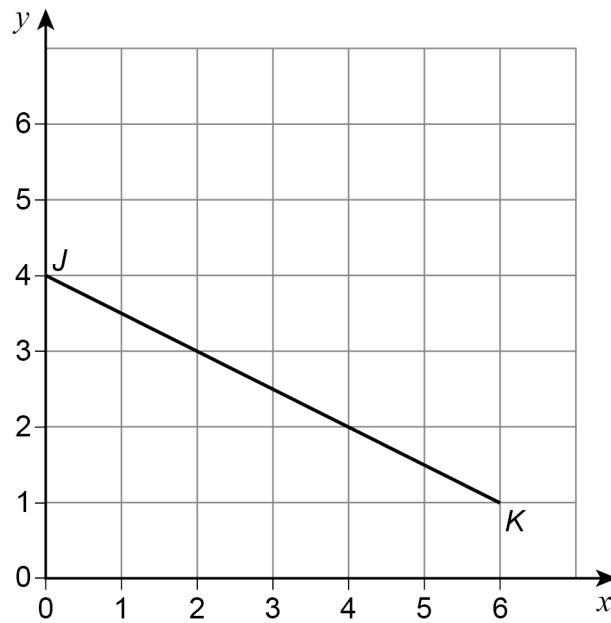
[1 mark]



5 Line JK is shown on the grid.

J is the point $(0, 4)$

K is the point $(6, 1)$



5 (a) Work out the coordinates of the midpoint of the line JK .

[2 marks]

Answer (_____ , _____)



- 5 (b)** L is a different point on JK .
 L is closer to K than to J .
 The coordinates of L are whole numbers.

Work out the coordinates of L .

[1 mark]

Answer (_____ , _____)

- 5 (c)** On the grid, draw a line from point $(0, 6)$ that is
 parallel to JK
 and
 one third as long as JK .

[2 marks]

- 6** Work out the value of $2^6 - \sqrt{529}$

[2 marks]

Answer _____



7 Here are two groups of numbers, A and B.

A

37	34
6	8
23	11

B

27	28
10	16

One number is moved from A to B.

The sum of the numbers in **B** is now 30 **more** than the sum of the numbers in A.

Which number is moved?

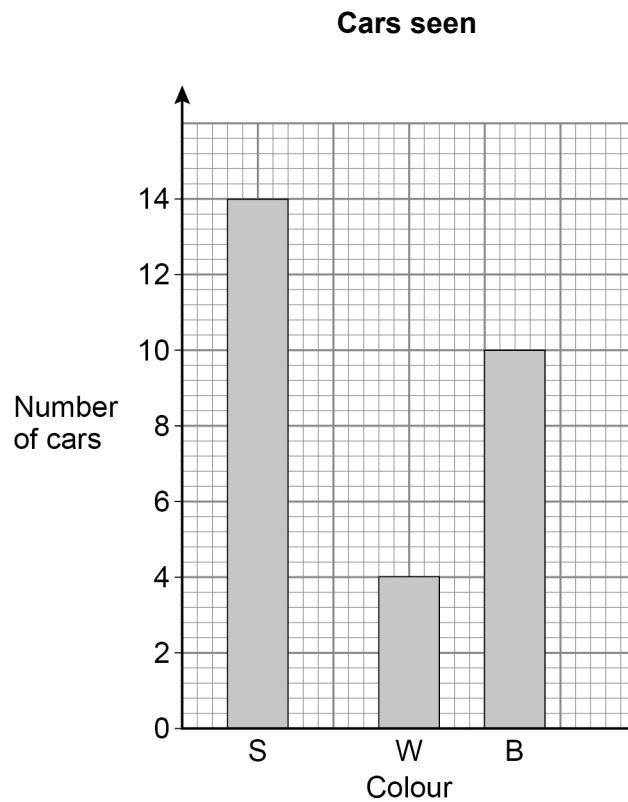
You **must** show your working.

[3 marks]

Answer _____



- 8 On a journey, Anwar sees 25 cars.
Each car is silver, white or blue.
He draws this bar chart.



Make **two** criticisms of his bar chart.

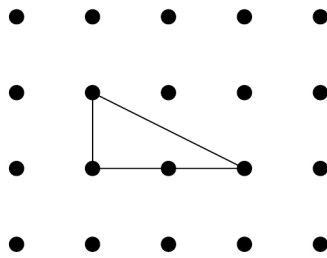
[2 marks]

Criticism 1 _____

Criticism 2 _____

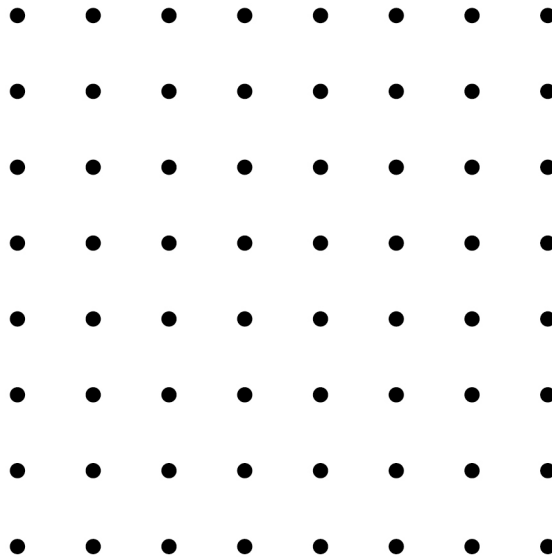


- 9 Here is a triangle on a square dotted grid.



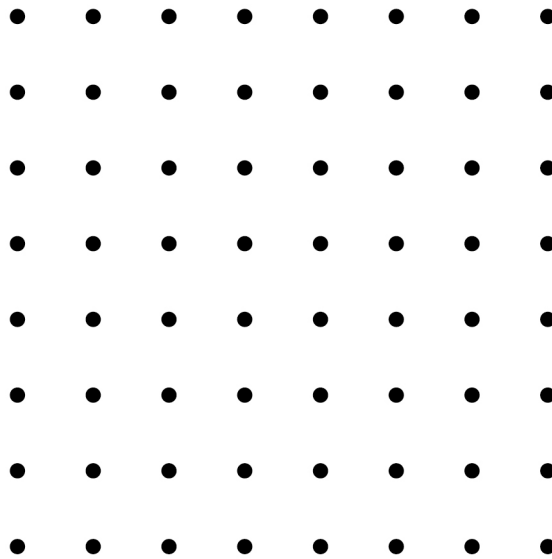
- 9 (a) On the grid below, use **two** of these triangles to make an **isosceles triangle**.

[1 mark]



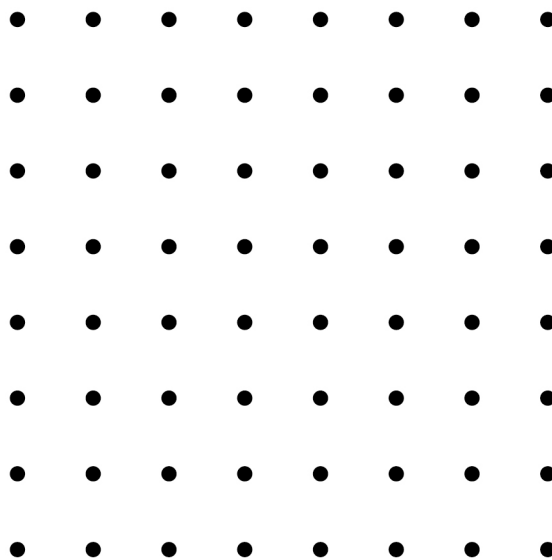
9 (b) On the grid below, use **four** of these triangles to make a **parallelogram**.

[1 mark]

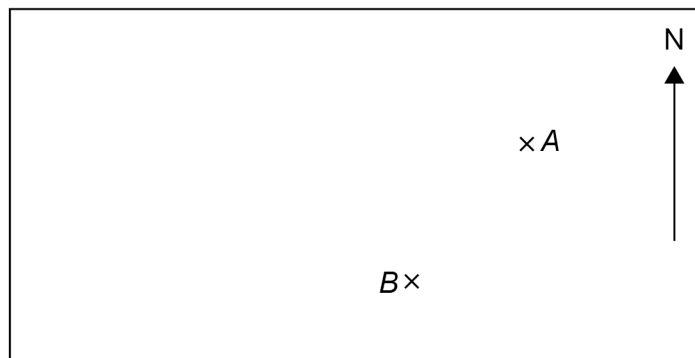


9 (c) On the grid below, use **four** of these triangles to make a **trapezium**.

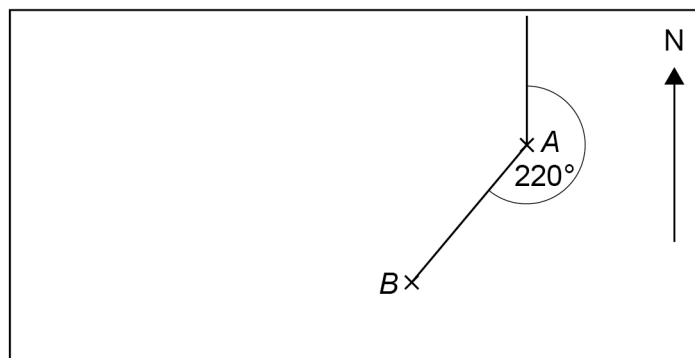
[1 mark]



10 (a) Here is a map showing points *A* and *B*.



Kezi wants to measure the bearing of *A* from *B*.



Kezi says that the bearing of *A* from *B* is 220°

Is she correct?

Tick a box.

☐

Yes

☐

No

Give a reason for your answer.

[1 mark]



- 10 (b)** On a different map, the bearing of D from C is 135°
Nick says,
“ D is South West of C .”

Give a reason why Nick is **not** correct.

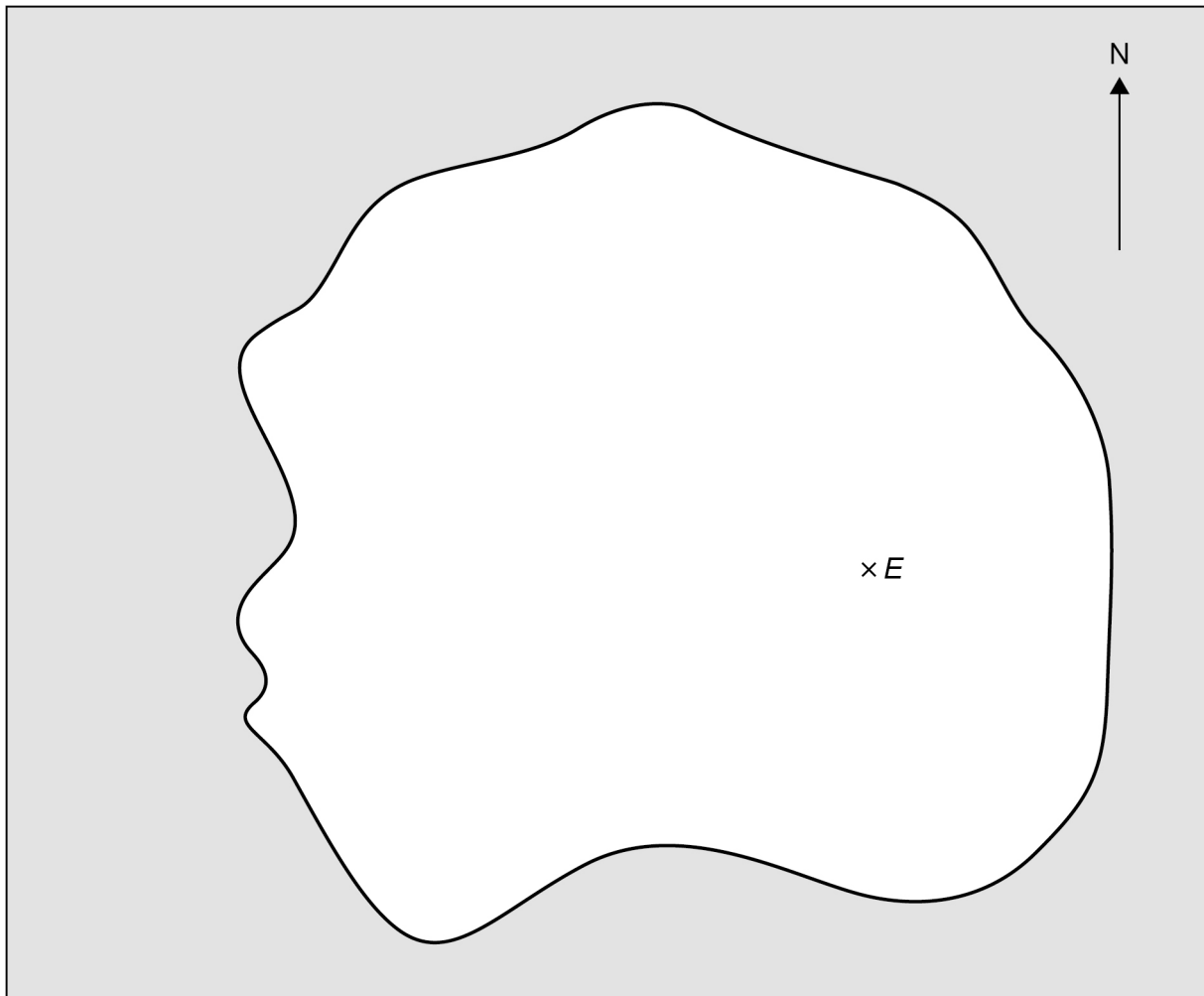
[1 mark]

Question 10 continues on the next page



10 (c) This map shows an airport, E , on an island.

Scale: 1 cm represents 20 km



A plane flies due North from the airport.

How far does it fly until it reaches the sea?

[3 marks]

Answer _____ km



11 (a) Solve $x + 21 = 15$

[1 mark]

$x =$ _____

11 (b) Solve $\frac{y}{5} = 9$

[1 mark]

$y =$ _____

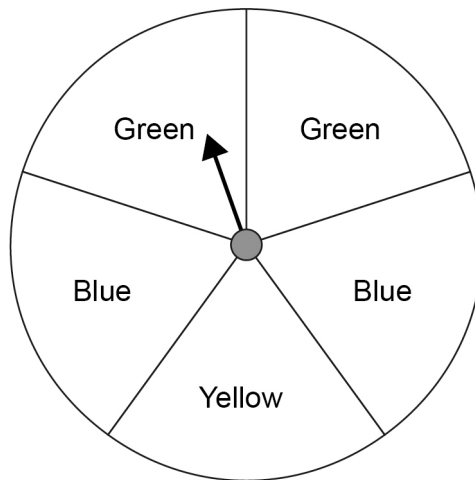
11 (c) Simplify fully $\frac{42k^2}{48k}$

[2 marks]

Answer _____



- 12** A fair spinner has five equal sections as shown.



- 12 (a)** Tayo spins the spinner.

Write down the probability that Tayo gets Yellow.

[1 mark]

Answer _____

- 12 (b)** Tayo gets a Green three times in a row.
Jamal is next to spin.

Write down the probability that Jamal gets Green.

[1 mark]

Answer _____



12 (c) Hanyu does 35 spins.

How many of these spins are expected to be Blue?

[2 marks]

Answer _____

Turn over for the next question



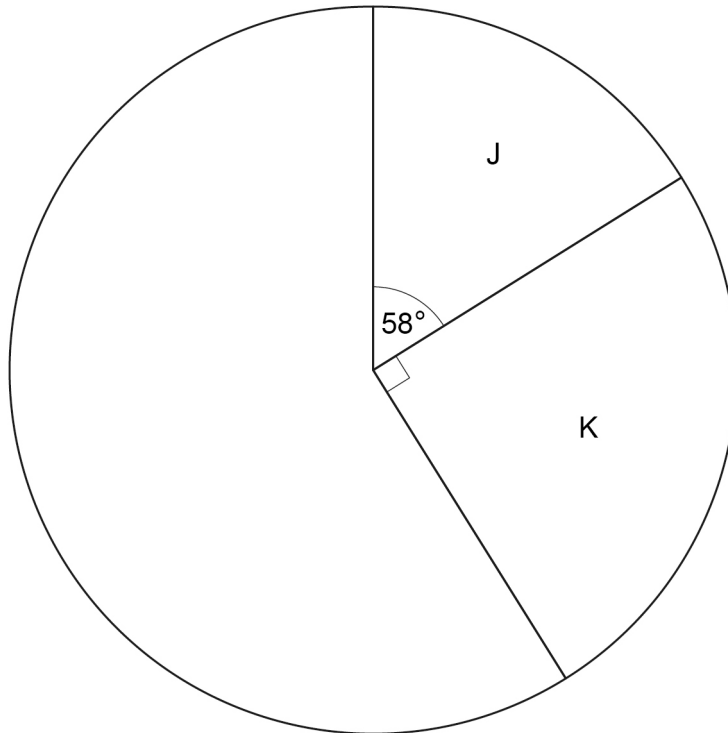
13

A factory made springs using four machines, J, K, L and M.

Fran is drawing a pie chart to represent the number of springs made by each machine.

The sectors for J and K have been drawn.

Springs

**13 (a)**

Machine M made three times as many springs as machine L.

Complete the pie chart.

[3 marks]

13 (b) Altogether, 27 000 springs were made.

How many were made by machine J?

[2 marks]

Answer _____

Turn over for the next question



- 14** A forest has 8400 trees.
The trees are beech or maple.
number of beech : number of maple = 2.5 : 1

14 (a) What fraction of the trees are **beech**?

[2 marks]

Answer _____

14 (b) Write number of beech : number of maple in the form $1 : n$

[1 mark]

Answer $1 : \underline{\hspace{2cm}}$



- 15 (a)** Use your calculator to work out $10.23^2 \times 62.1$
Give your answer as a decimal.
Write down your full calculator display.

[1 mark]

Answer _____

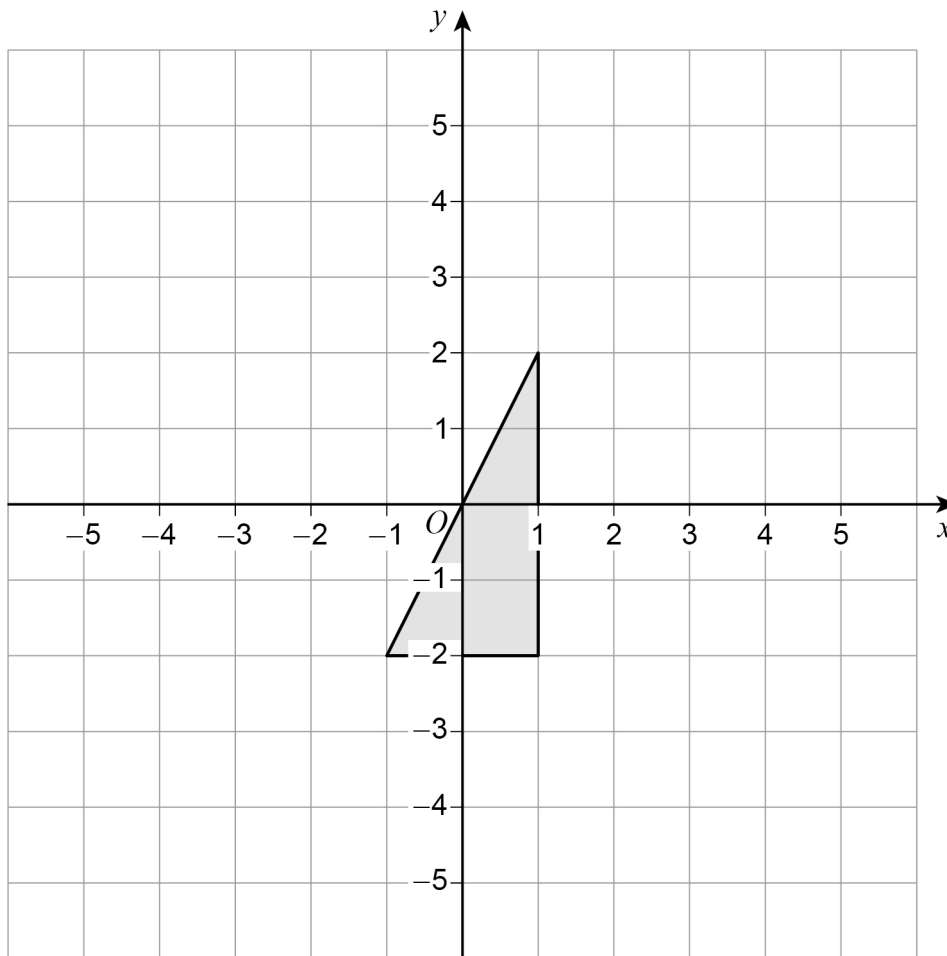
- 15 (b)** Use approximations to check your answer to **part (a)**.

[3 marks]

Turn over for the next question

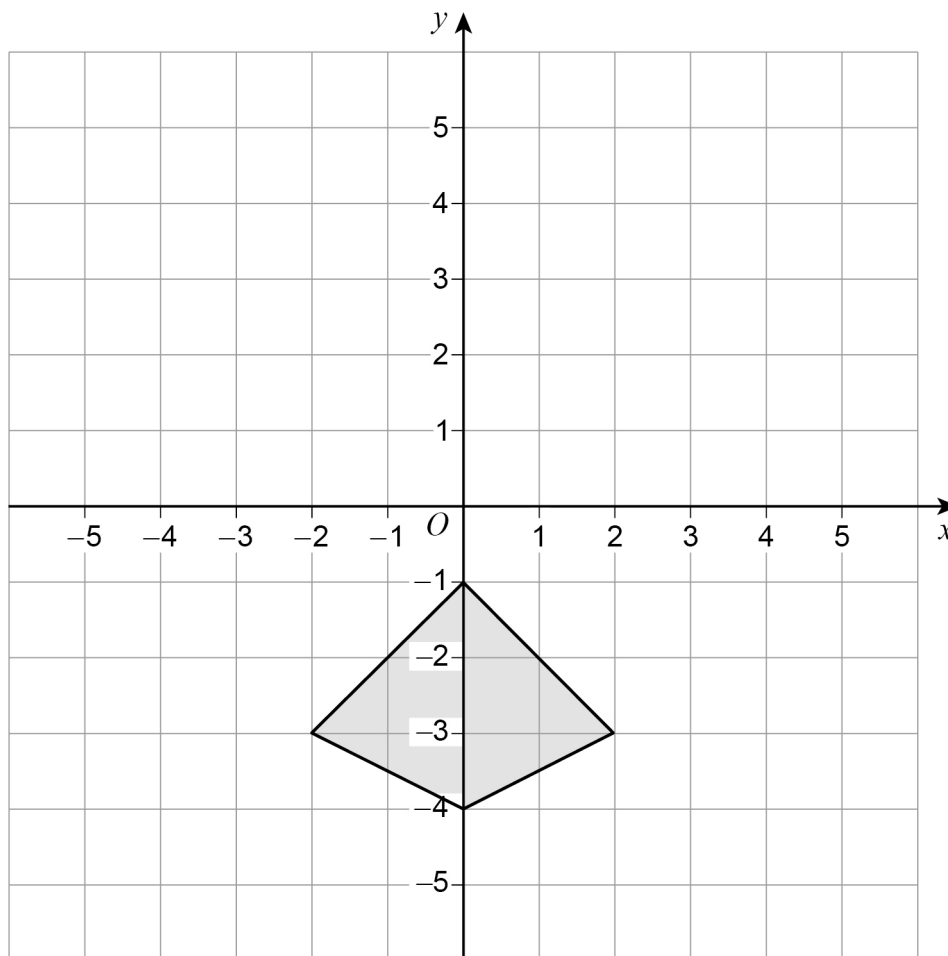
16 (a) Reflect the triangle in the line $x = -2$

[2 marks]



16 (b) Rotate the kite 90° clockwise about $(0, 1)$

[2 marks]



Turn over for the next question

Turn over ►



Here is a cuboid.



The other four faces are green.

Which is greater, the total blue area or the total green area?

You **must** show your working.

[3 marks]

[illegible]

Answer _____



At a cafe,

6 teas and 1 coffee cost \$13.70

Work out the cost of 1 tea and the cost of 1 coffee.

[4 marks]

[illegible]

1 Tea = \$ _____

1 Coffee = \$

Turn over for the next question

7

Turn over ►



19 Solve $4(x + 7) < 36$

[2 marks]

Answer _____

20 a is a common **factor** of 70 and 105

b is a common **multiple** of 2 and 5

Work out the **greatest** possible value of $\frac{a}{b}$

[4 marks]

Answer _____



21 Investment A Save \$120 per **month** for 2 years.
After the 2 years 2.5% interest is added to the total amount saved.

Investment B Invest \$2800
Compound interest is added at 3% per year.

After 2 years, how much **more** is investment B worth than investment A?

[4 marks]

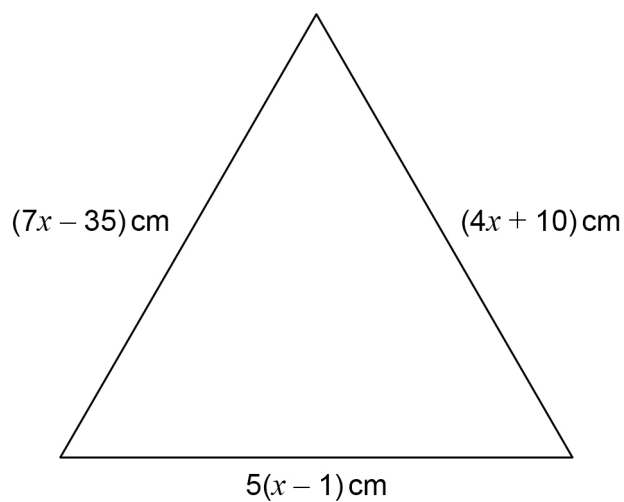
Answer \$ _____

Turn over for the next question



22

This triangle is equilateral.

Not drawn
accurately

Is the perimeter of the triangle greater than 2 metres?

You **must** show your working.**[5 marks]**



23

The mean mass of a team of 17 hockey players is 82 kg

A player of mass 91 kg joins the team.

Work out the mean mass of the team now.

[3 marks]

Answer _____ kg

Turn over for the next question



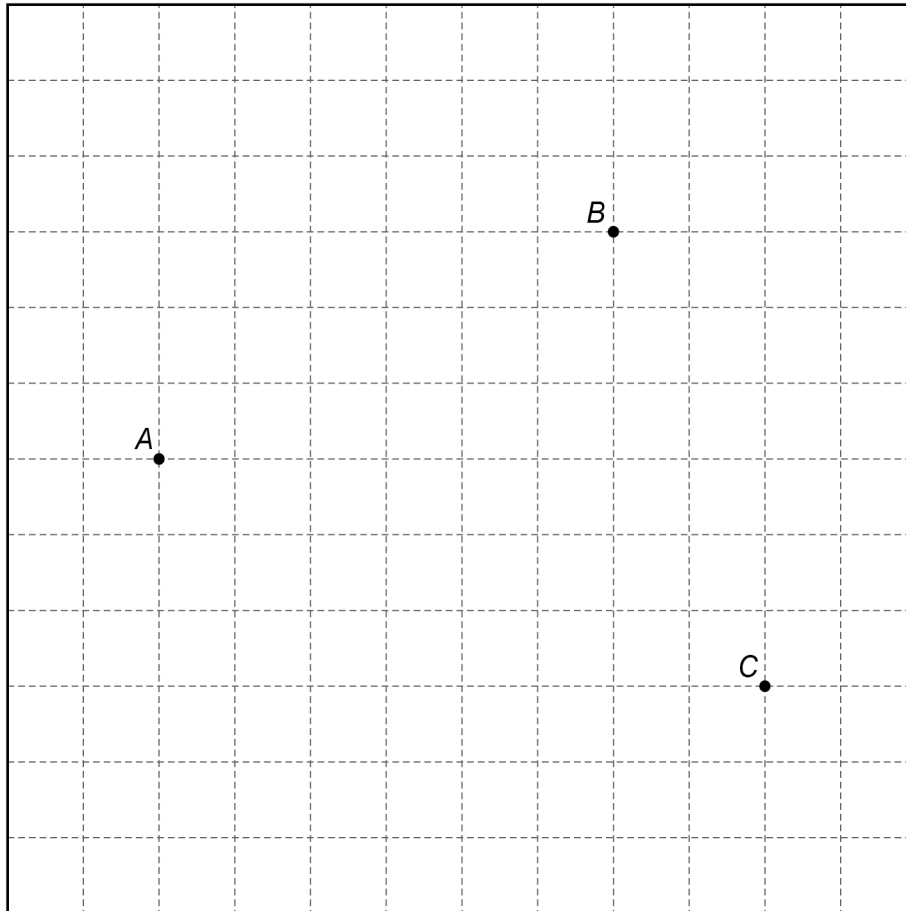
24

Using ruler and compasses, show the region inside the centimetre grid that is
less than 5 cm from A
and
nearer to B than to C .

Label the region R .

Show all your construction lines.

[3 marks]



25

Here is an identity.

$$a(3x - 8) \equiv 33x + 2b$$

Work out the values of a and b .**[3 marks]**

 $a =$ _____ $b =$ _____**END OF QUESTIONS**

There are no questions printed on this page

*Do not write
outside the
box*

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**



