Candidate forename		Candidate surname	

Centre number						Candidate number				

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

GCSE

J567/01

MATHEMATICS B

Paper 1 (Foundation Tier)

MONDAY 11 JUNE 2012: Afternoon

DURATION: 1 hour 30 minutes
plus your additional time allowance

MODIFIED ENLARGED

Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments
Tracing paper (optional)

READ INSTRUCTIONS OVERLEAF

DC (SLM/JB) 12MEP06437 65338/1

INSTRUCTIONS TO CANDIDATES

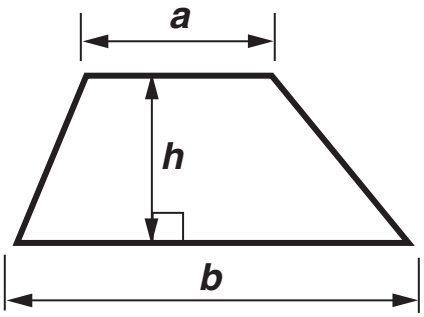
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. HB pencil may be used for graphs and diagrams only.**
- **Answer ALL the questions.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.**
- **Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).**

INFORMATION FOR CANDIDATES

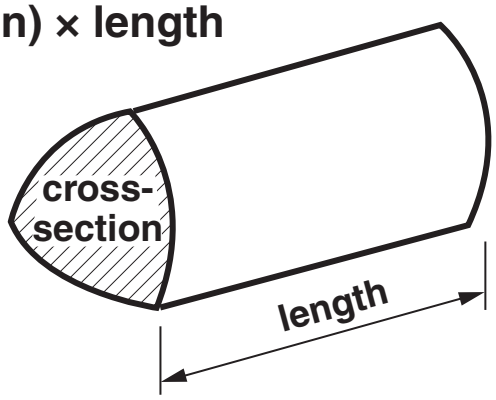
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Your Quality of Written Communication is assessed in questions marked with an asterisk (*).**
- **The total number of marks for this paper is 100.**

FORMULAE SHEET: FOUNDATION TIER

Area of trapezium $= \frac{1}{2}(a + b)h$



Volume of prism = (area of cross-section) × length



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1 Write the missing numbers in the boxes.

(a) $407 + 28 = \square$ **[1]**

(b) $\square \div 10 = 57$ **[1]**

(c) $3 \times \square = 72$ **[1]**

2 (a) This table shows the number of medals won by the top five countries in the 2008 Olympic Games.

	Gold	Silver	Bronze
USA	36	38	36
China	51	21	28
Russia	23	21	28
Great Britain	19	13	15
Australia	14	15	17

(i) How many silver medals did China win?

(a)(i) _____ **[1]**

(ii) How many medals did Great Britain win in total?

(ii) _____ **[1]**

(iii) How many MORE gold medals did China win than Australia?

(iii) _____ [1]

(b) Rebecca Adlington won the 400 metre swimming gold medal.
The swimming pool was 50 metres long.

How many lengths of the pool did Rebecca swim?

(b) _____ [2]

3 (a) Convert.

(i) 4.7 cm to millimetres

(a)(i) _____ mm [1]

(ii) 538 cm to metres

(ii) _____ m [1]

(b) Choose one of these metric units to complete each of the sentences below.

metres	litres	grams	centimetres
kilograms	millimetres	kilometres	millilitres

(i) The length of a car is about

4.1 _____ . [1]

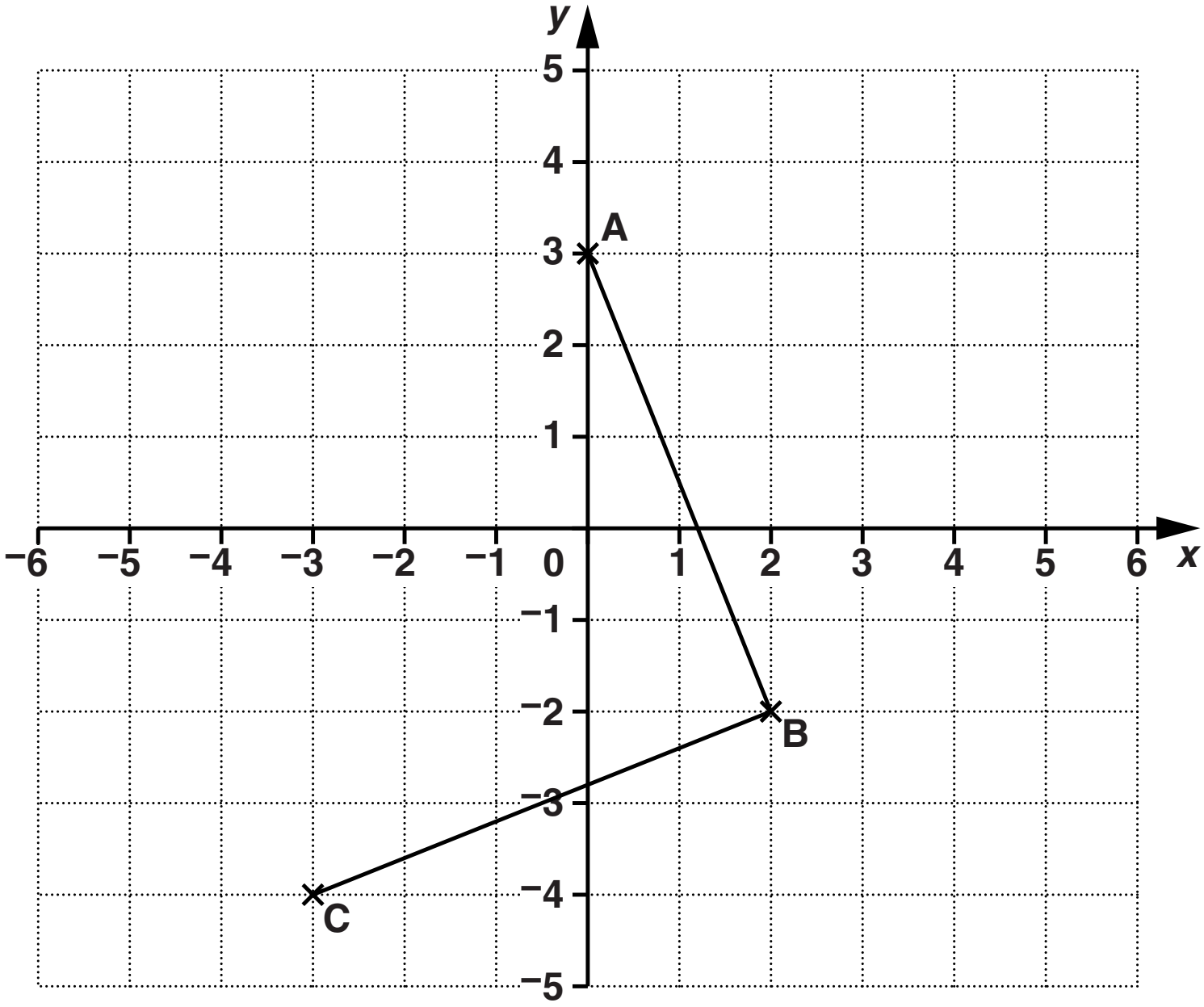
(ii) The petrol tank of a car holds about

55 _____ . [1]

(iii) The weight of a car is about

1200 _____ . [1]

4 Points A, B and C are marked on the grid below.



(a) Write down the coordinates of A, B, and C.

A (_____ , _____)

B (_____ , _____)

C (_____ , _____) **[3]**

(b) Plot the point D so that ABCD is a square. **[1]**

5 Work out.

(a) (i) 13.5 + 5.72

(a)(i) _____ **[1]**

(ii) 3 – 1.4

(ii) _____ **[1]**

(b) Write these four decimals in order of size, smallest first.

0.4 0.59 0.16 0.05

(b) _____ _____ _____ _____ **[2]**
smallest

6 (a) Work out.

(i) 10% of 320

(a)(i) _____ **[1]**

(ii) 40% of 320

(ii) _____ **[1]**

(iii) 5% of 320

(iii) _____ **[1]**

(b) There are 320 students in Year 10 in a school. 35% of these students come to school by bus.

How many students come to school by bus?

(b) _____ [2]

7 (a) Work out these calculations.

(i) $4 + 3 \times (1 + 2)$

(a)(i) _____ **[1]**

(ii) $\frac{4}{2} + 1 \times 3$

(ii) _____ **[1]**

(iii) $\frac{4 \times 3}{2 + 1}$

(iii) _____ **[1]**

(b) Fern is finding calculations that follow these rules

- **you must use ALL the digits 1, 2, 3 and 4, but they can each be used only once**
- **you can add, subtract, multiply or divide as many times as you like**
- **you can use brackets.**

For example when Fern was looking for a calculation with an ANSWER OF 9, she wrote down

$(4 + 3 + 2) \times 1$.

Find a calculation, using her rules, which has an answer of

(i) 8,

(b)(i) _____ [1]

(ii) 15.

(ii) _____ [1]

8 Josh and Sadiq are 400-metre runners.
They complete a run each day for a week.
They each keep a record of their times.

(a) These are Josh's times in seconds.

48.6 48.5 48.7 49.2 48.4 48.8 48.5

(i) Work out the median time.

(a)(i) _____ seconds [2]

(ii) Work out the range of Josh's times.

(ii) _____ seconds [1]

(b) Sadiq has a median of 47.7 seconds and a range of 1.2 seconds for his runs.

Make two comparisons between Josh's times and Sadiq's times.

1 _____

_____

_____

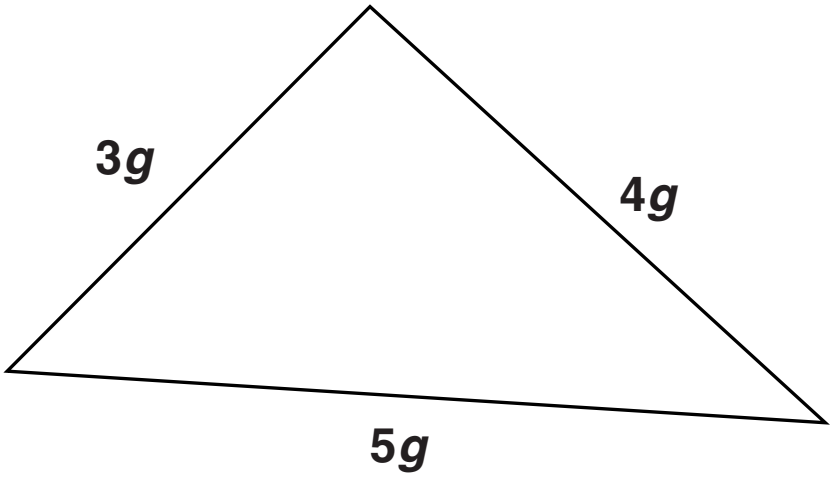
2 _____

_____

_____ **[2]**

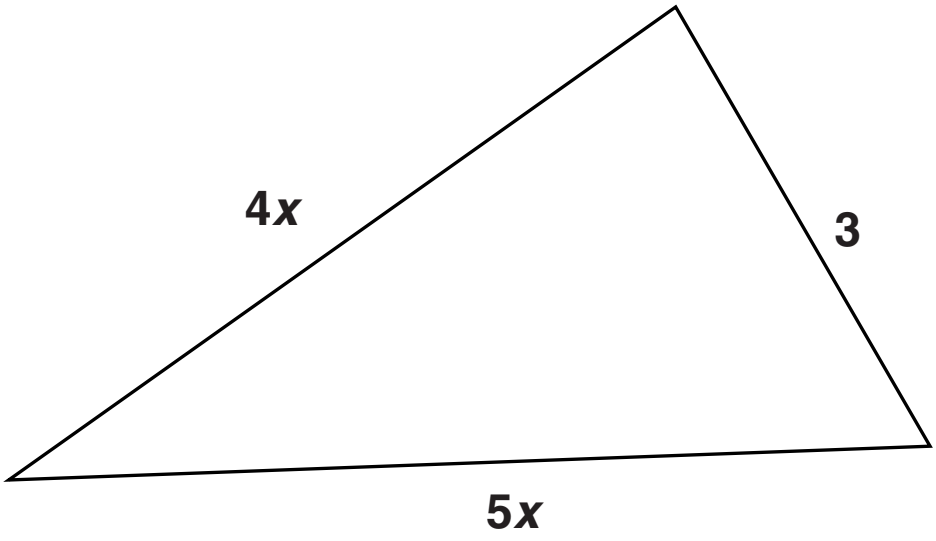
9 (a) Write down an expression for the perimeter of each triangle.
Write each answer as simply as possible.

(i)



(a)(i) _____ **[1]**

(ii)



(ii) _____ **[1]**

(b) Simplify.

$3c - d - 2c - 4d$

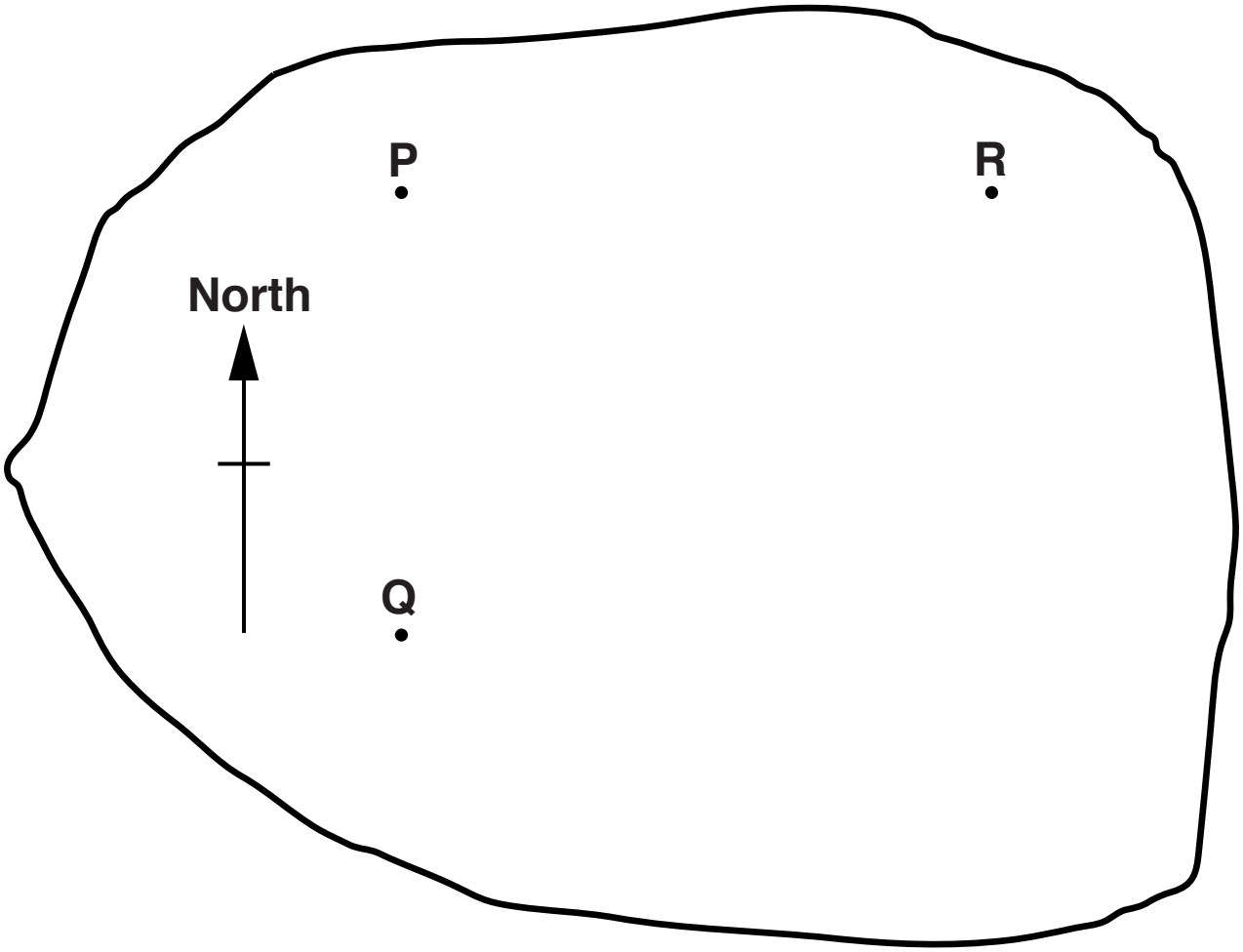
(b) _____ **[2]**

(c) A regular pentagon has a perimeter of length $10y$.

What is the length of one side of the pentagon?

(c) _____ **[2]**

10 The diagram below is a scale drawing of part of a wind farm.
P, Q and R are wind turbines.
P is North of Q.
The scale is 1 cm represents 10 m.



(a) Use one of these words to complete the sentence.

North	South	East	West

R is _____ of P. **[1]**

(b) Use the map to complete these sentences.

(i) The distance from P to Q is

_____ metres. **[1]**

(ii) The bearing of R from Q is

_____ °. **[1]**

(c) A new wind turbine, T, is to be built.
The turbine will be 75 metres from Q on a bearing of 115°.

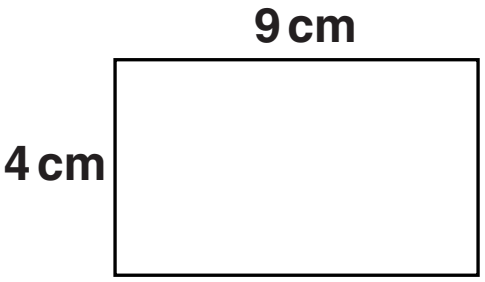
Mark the position of T with a cross on the scale drawing. **[2]**

11 (a) A square has a side of length 7 cm.

Work out the area of the square.

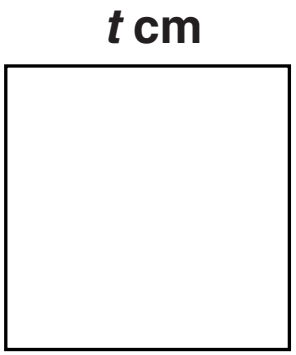
(a) _____ cm^2 [2]

(b) A rectangle has width 4 cm and length 9 cm. The rectangle is shown on the following diagram.



NOT TO SCALE

A square, of side *t* cm, has the same area as the rectangle. The square is shown on the following diagram.

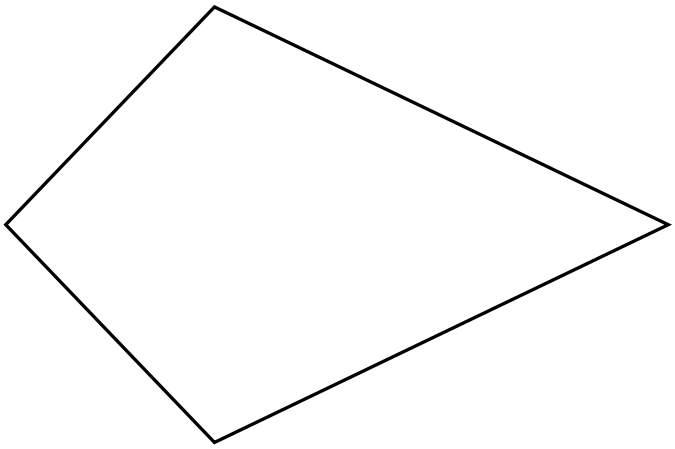


NOT TO SCALE

Work out *t*.

(b) _____ **[3]**

12 (a) (i) Draw any lines of symmetry on this shape.



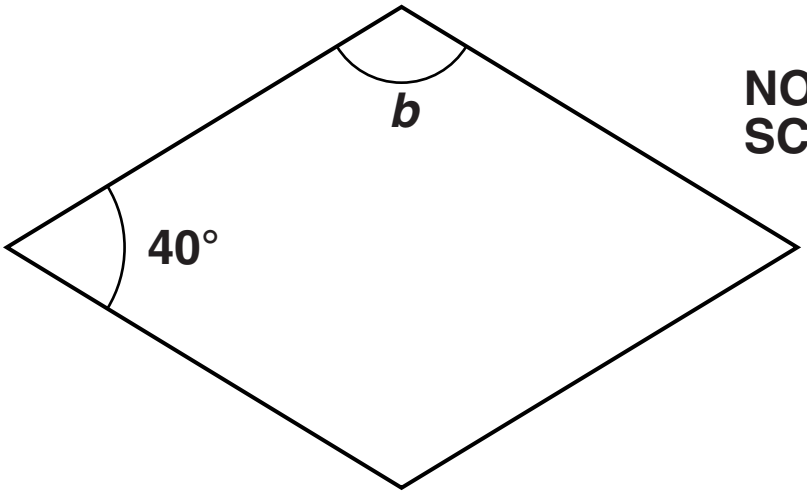
[1]

(ii) What is the special mathematical name of the shape?
Choose from the words in this box.

Rectangle	Parallelogram
Trapezium	Kite

(a)(ii) _____ **[1]**

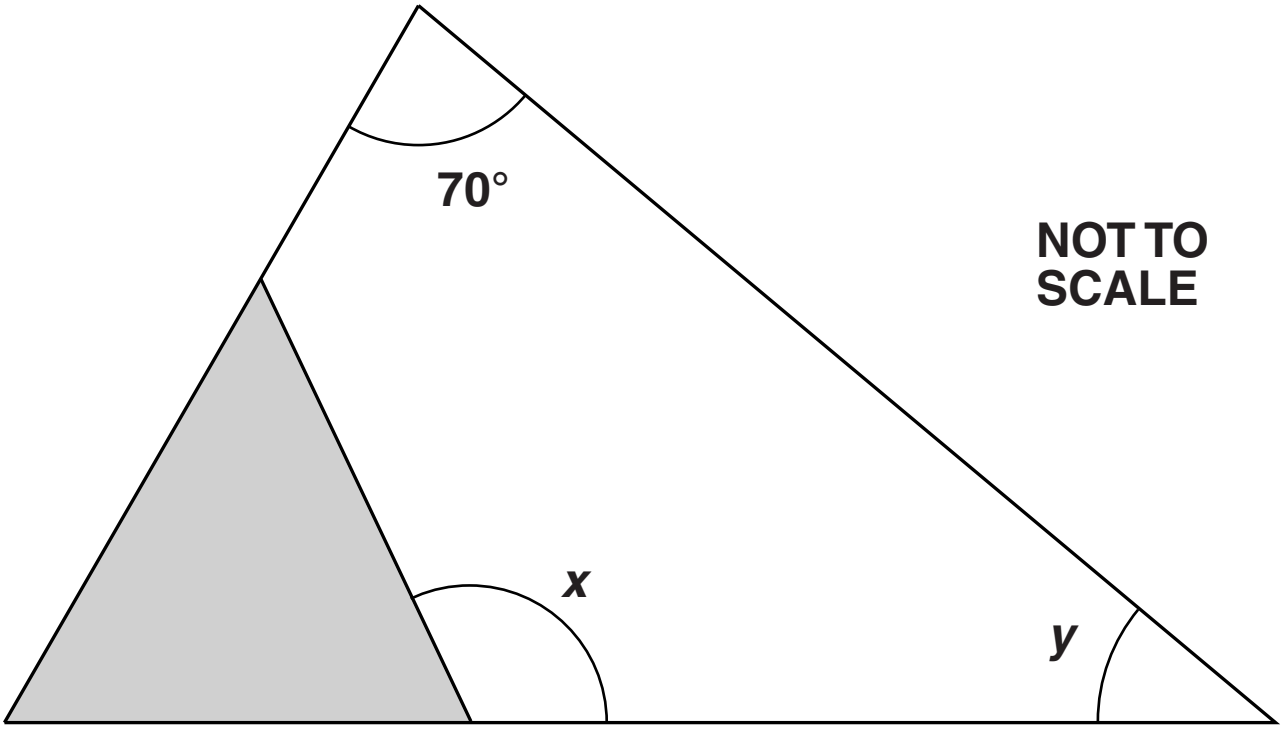
(b) Work out angle *b* in this rhombus.



NOT TO SCALE

(b) _____° **[3]**

(c) Look at the diagram below.



The shaded triangle is equilateral.

(i) Work out angle *x*.

(c)(i) _____ **° [2]**

(ii) Work out angle *y*.

(ii) _____ **° [2]**

13 (a) A box contains some counters.
5 are red, 4 are black and 2 are yellow.
George takes a counter from the box without looking.

(i) What is the probability that the counter is red?

(a)(i) _____ [2]

(ii) What is the probability that the counter is black OR yellow?

(ii) _____ [1]

(iii) What is the probability that the counter is blue?

(iii) _____ [1]

(b) Another box contains 9 green counters and 10 orange counters.
Lydia puts some more green counters into the box.
She then takes a counter from the box without looking.

The probability that the counter is green is $\frac{3}{5}$.

How many more green counters did Lydia put into the box?

(b) _____ [2]

14 Solve.

(a) $\frac{x}{5} = 8$

(a) $x =$ _____ **[1]**

(b) $3x + 5 = 26$

(b) $x =$ _____ **[2]**

(c) $5x - 2 = 3x + 7$

(c) $x =$ _____ **[3]**

15 The heights and weights of ten Year 11 girls are recorded in this table.

Height (cm)	161	148	151	174	153	163	155	168	173	164
Weight (kg)	72	53	51	83	62	70	70	76	75	79

The data for the first six girls is plotted on the scatter graph opposite.

(a) Complete the scatter graph. [2]

(b) Describe the correlation shown.

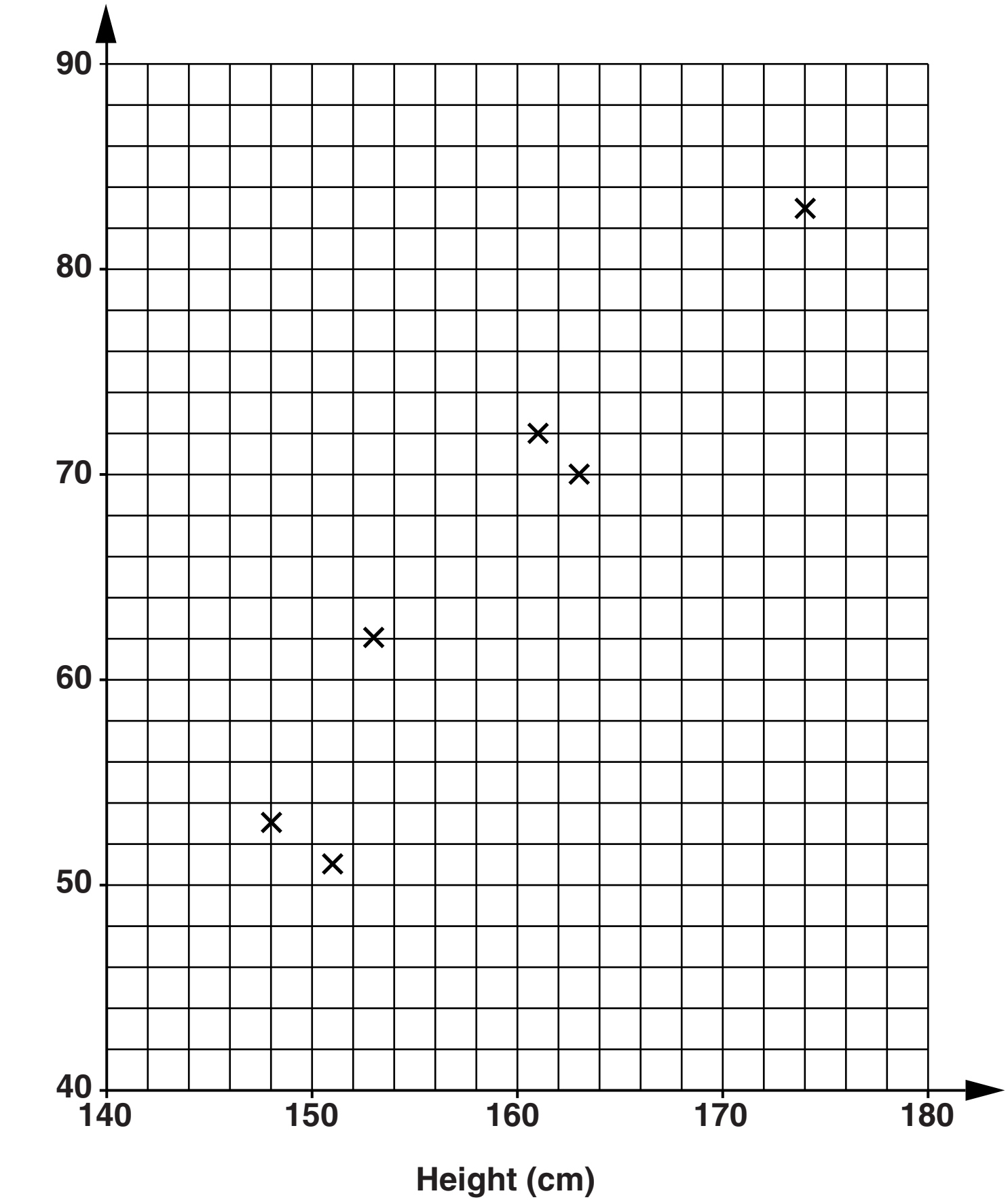
_____ [1]

(c) (i) Draw a line of best fit on your graph. [1]

(ii) Another girl in Year 11 has a height of 159 cm.

Use your line of best fit to estimate her weight.

(c)(ii) _____ kg [1]


Weight (kg)
90
80
70
60
50
40
140
150
160
170
180
Height (cm)

16 (a) Write as a decimal.

(i) $\frac{3}{50}$

(a)(i) _____ **[1]**

(ii) $\frac{2}{9}$

(ii) _____ **[1]**

(b) Work out.

(i) $\dfrac{5^2 \times 5^5}{5^4}$

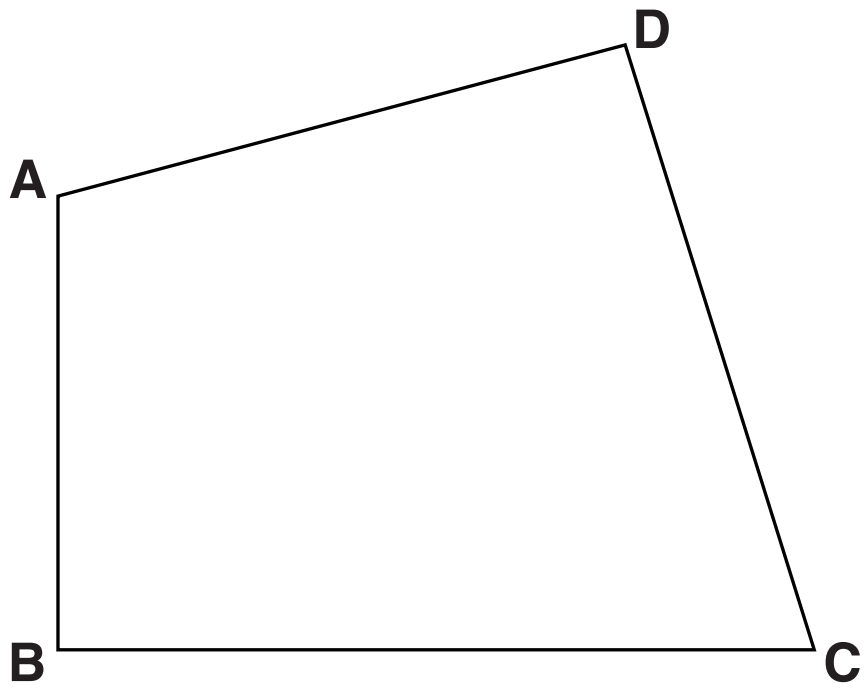
(b)(i) _____ **[2]**

(ii) $3\frac{1}{3} - 1\frac{5}{6}$

Give your answer in its simplest form.

(ii) _____ **[3]**

17 The diagram below is a scale diagram which shows a field ABCD.
The scale is 1 cm represents 10 m.



Tom pitches his tent in the field.

The tent is pitched

- **closer to AB than to AD**
- **more than 50m from C.**

Construct and shade the region where Tom's tent could be pitched.
Leave in all your construction lines. **[4]**

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18 Nita is making a fruit drink.
She mixes apple juice and mango juice in the ratio 3 : 1.

(a) How much of each type of juice will she need to make 1 litre of the fruit drink?
Give your answers in millilitres.

(a) Apple juice _____ ml

Mango juice _____ ml [2]

(b)* Apple juice costs 56p for a 1-litre carton.
Mango juice costs £1.20 for a 1-litre carton.
A pack of 80 plastic cups costs £1.

Nita sells her fruit drink at a school concert in 250 ml cups for 60p each.
She gives all the PROFIT she makes to the school fund.
Nita makes 80 cups of the fruit drink and sells them all.

How much money does she give to the school fund?

(b) _____ [5]

TURN OVER FOR QUESTION 19

19 (a) Here are the first four terms of a sequence.

8 11 14 17

Write an expression for the *n*th term of this sequence.

(a) _____ **[2]**

(b) The *n*th term of another sequence is given by 12 – 5*n*.

Write down the first three terms of this sequence.

(b) _____, _____, _____ **[2]**

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