OCR
Oxford Cambridge and RSA

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Thursday 21 May 2015 – Morning

GCSE MATHEMATICS B

J567/01 Paper 1 (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Geometrical instruments
- Tracing paper (optional)

Duration: 1 hour 30 minutes

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. 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).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- Quality of written communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is **100**.
- This document consists of **20** pages. Any blank pages are indicated.

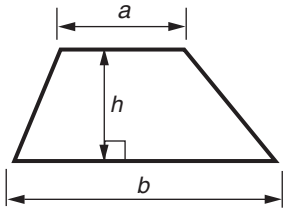
WARNING

No calculator can be used for this paper

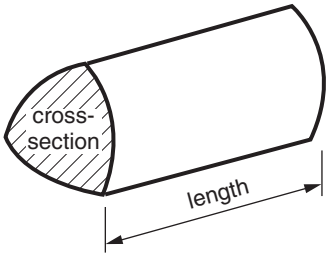
OCR is an exempt Charity

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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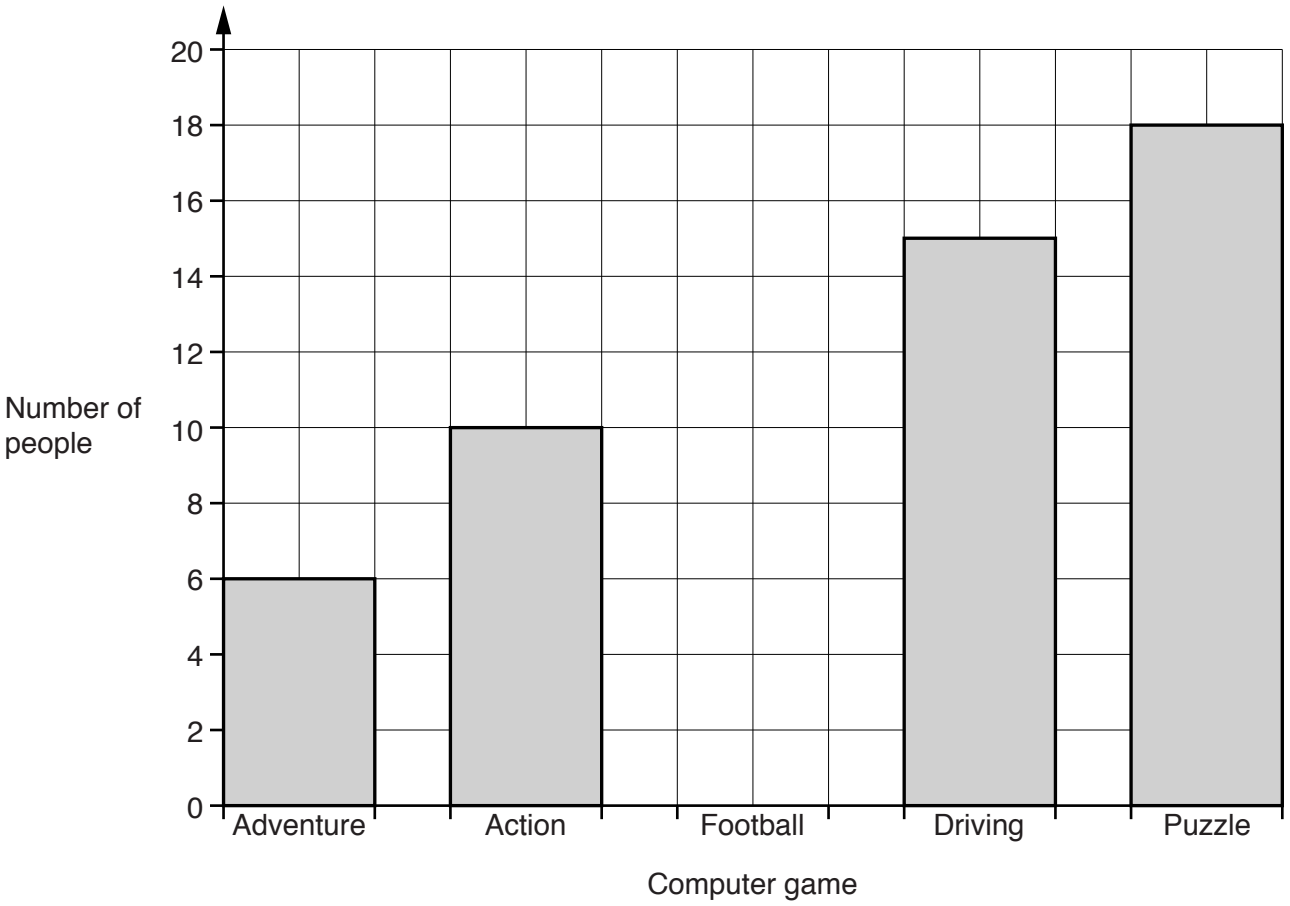
Answer **all** the questions.

1 Leonie asked 60 people what their favourite type of computer game was.

She recorded her results on the bar chart below.



(a) How many people answered Driving?

(a) _____ **[1]**

(b) 9 people answered Football.

Show this on the bar chart. **[1]**

(c) What was the least popular type of game?

(c) _____ **[1]**

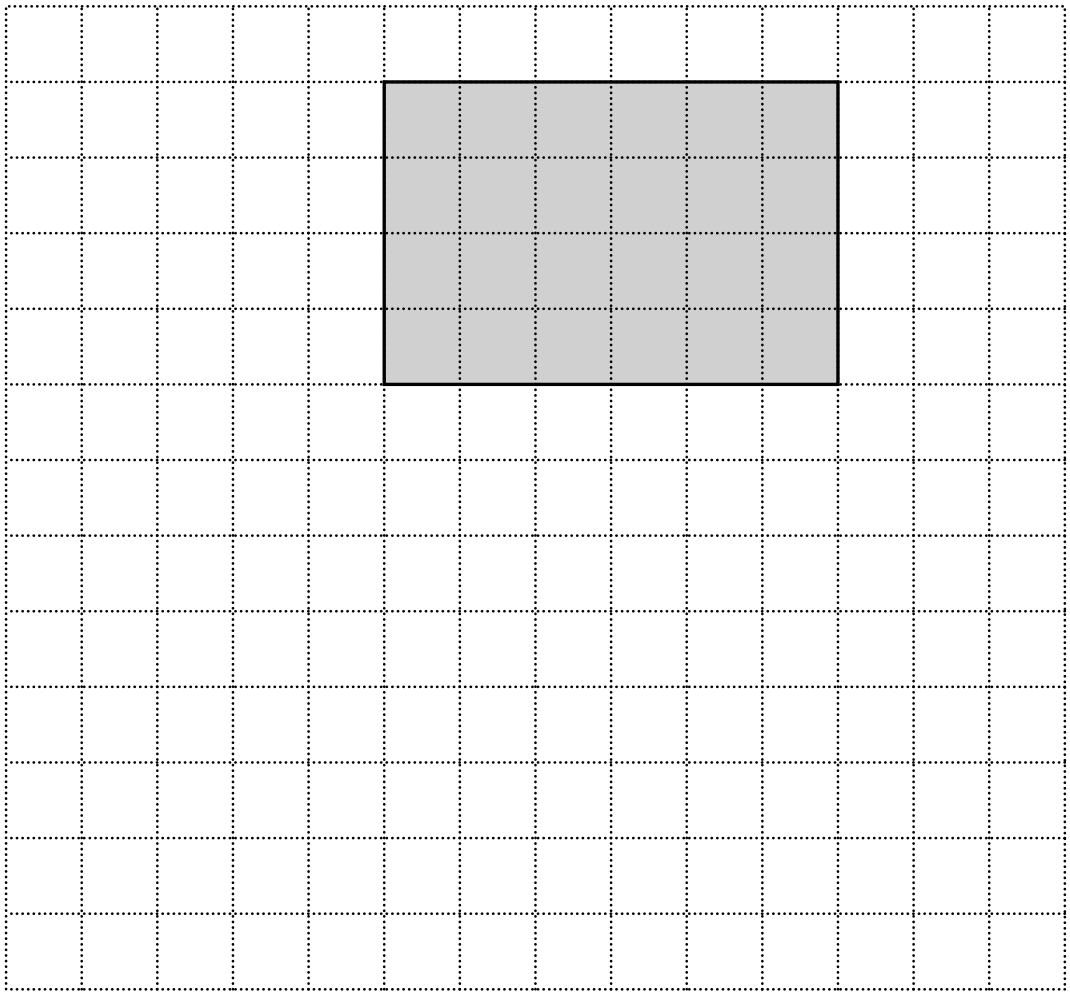
(d) How many **fewer** people chose Action than Puzzle?

(d) _____ **[1]**

(e) How many people did not answer?

(e) _____ **[2]**

2 A rectangle has been drawn on a one-centimetre square grid.



(a) **(i)** What is the perimeter of the rectangle?

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

(ii) On the grid draw a different rectangle with the same perimeter. **[2]**

(b) Rupert wants to draw a rectangle with an area of 30 cm^2.
The lengths of all the sides will be whole numbers.

Find the difference between the smallest and largest perimeters of the rectangles he could draw.

Show all your working.

(b) _____ cm **[4]**

3 Work out.

(a) 872 + 236

(a) _____ **[1]**

(b) 629 – 447

(b) _____ **[1]**

(c) 6.02 × 100

(c) _____ **[1]**

(d) 72.548 ÷ 1000

(d) _____ **[1]**

(e) 30% of 520

(e) _____ **[2]**

(f) 254×32

(f) _____ **[3]**

4 **(a)** Write the following temperatures, in °C, in order starting with the coldest.

$6 \quad {}^{-}8 \quad {}^{-}11 \quad 0 \quad {}^{-}2$

_____ _____ _____ _____ _____

coldest **[1]**

(b) The temperature at 6 am was $^{-}3$ °C.
By lunch time the temperature had risen by 5°.

What was the temperature at lunch time?

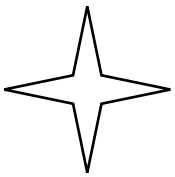
(b) _____ °C **[1]**

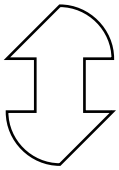
(c) The temperature in Katie's fridge is 2 °C.
The temperature in her freezer is $^{-}21$ °C.

How much colder is the freezer than the fridge?

(c) _____ °C **[1]**

5 What is the order of rotation symmetry of each of these shapes?





_____ _____ **[2]**

6 **(a)** Simplify.

$7j - 6k - 5j + 4k$

(a) _____ **[2]**

(b) Solve.

(i) $3c = 18$

(b)(i) $c =$ _____ **[1]**

(ii) $7d + 16 = 51$

(ii) $d =$ _____ **[2]**

(iii) $\frac{x}{100} - 14 = 36$

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

(c) Work out the value of $5g + 3h$ when $g = 7$ and $h = 4$.

(c) _____ **[2]**

(d) Multiply out.

$3(2x + 4)$

(d) _____ **[1]**

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

18 10 2 –6

(i) Write down the next term of the sequence.

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

(ii) Explain how you worked out your answer.

_____ **[1]**

(b) The expression for the nth term of a different sequence is $6n - 4$.

Write down the first three terms of this sequence.

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

8 Here is a list of numbers.

18 7 40 32 7 11 18 67 11 7 46

(a) Find the mode.

(a) _____ **[1]**

(b) Find the range.

(b) _____ **[1]**

9 **(a)** Charlie (C), Max (M) and Sophie (S) are travelling by plane to St Petersburg.
Their seats are in a row of 3.

Complete the table to show where they could sit.
The first one has been done for you.

Seat 1	Seat 2	Seat 3
C	M	S

[2]

(b) The area of St Petersburg is 605.8 km^2.

Write 605.8 correct to the nearest ten.

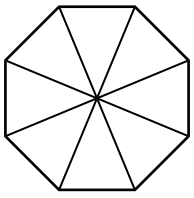
(b) _____ **[1]**

(c) In 2010 the population of St Petersburg was 4 840 000.

Write 4 840 000 correct to one significant figure.

(c) _____ **[1]**

10 **(a)** Shade $\frac{1}{4}$ of this shape.



[1]

(b) Pierre has 36 sweets. He gives $\frac{2}{3}$ of his sweets to his sister.

How many sweets does Pierre give to his sister?

(b) _____ **[2]**

11 **(a)** Write down two factors of 10.

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

(b) Write down the square root of 36.

(b) _____ **[1]**

(c) Work out $10^3 - 10^2$.

(c) _____ **[2]**

(d) Write down the reciprocal of 7.

(d) _____ **[1]**

(e) Wayne did this calculation and got the answer wrong.

$$6 + 4^2 - (7 \times 2) = 86$$

(i) Work out the correct answer.

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

(ii) Show how Wayne could have got the answer 86. **[1]**

12 **(a)** Ruth is cooking Christmas dinner.
She has a turkey of weight 5.5 kilograms.
The turkey needs to be cooked for 40 minutes per kilogram.

For how long does the turkey need to be cooked?

(a) _____ minutes **[2]**

(b) Roast potatoes take 50 minutes to cook.
Ruth puts them in the oven at 1.25 pm.

At what time will the potatoes be cooked?

(b) _____ **[1]**

(c) The number of sprouts that Bill and Ruth eat is in the ratio 3 : 2.
Bill eats 12 sprouts.

How many sprouts are eaten altogether?

(c) _____ **[2]**

(d) Bill opens a bottle containing 1.5 litres of orange juice.

How many glasses, each holding 250 millilitres, can he fill from the bottle?

(d) _____ **[2]**

(e) Ruth watches a film lasting 3 hours 15 minutes.
The film ends at 17 : 40.

At what time did the film start?

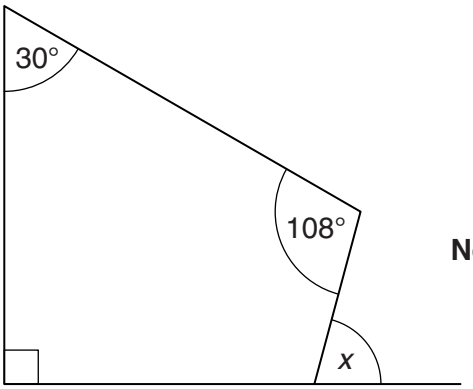
(e) _____ **[1]**

13 Jemima's dogs eat half a kilogram of dog food in total each day.
Dog food is sold in two different size bags.

Work out the cheapest cost for Jemima to feed her dogs for 40 days.
You must show how you decide.

_____ **[3]**

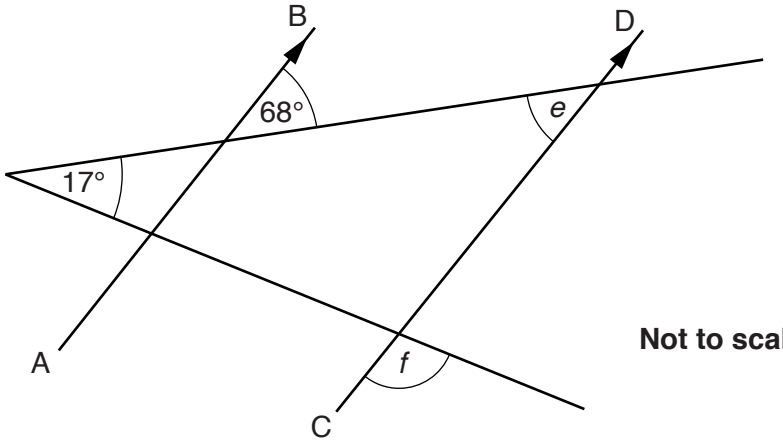
14 **(a)** Work out angle *x*.



Not to scale

(a) _____ ° **[3]**

(b) In the diagram AB is parallel to CD.



Not to scale

Work out the following angles, giving reasons for each answer.

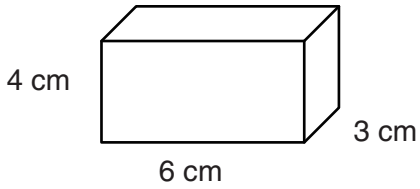
(i) Angle *e* = _____° because _____

_____ **[1]**

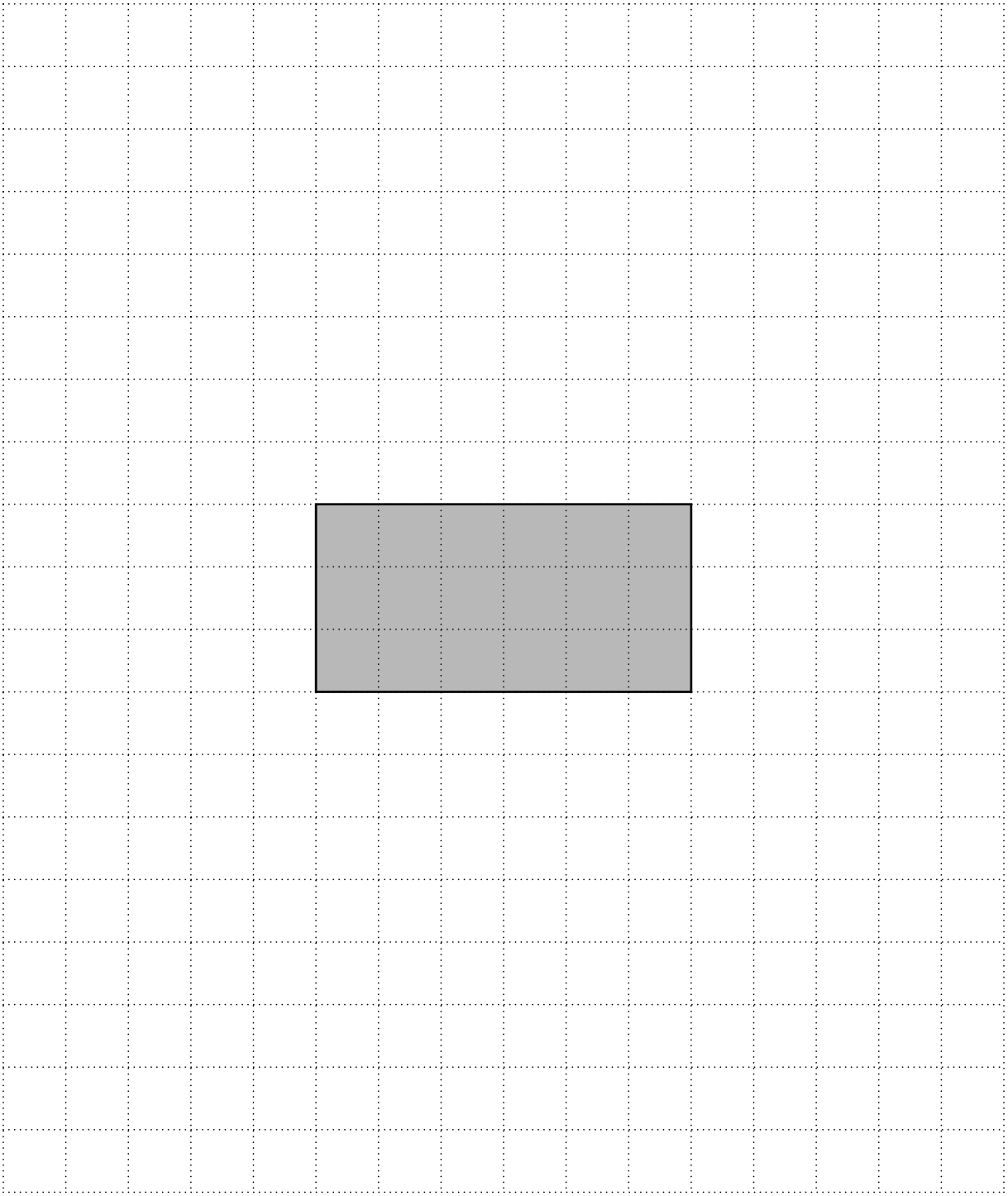
(ii) Angle *f* = _____° because _____

_____ **[3]**

15 The diagram shows a cuboid.



Complete the net of this cuboid on the one-centimetre square grid below.



[3]

16* A family has four daughters, Molly, Daisy, Rosie and Tilly.

- Daisy is six years older than Molly.
- Molly is four years younger than Tilly.
- Rosie is one year older than double Molly's age.
- The total of their ages is 51.

Find the age of each of the four girls. **[5]**

17 Magda is conducting a survey on travel.

(a) Here is one of her questions.

Do you agree that public transport is better now than it was five years ago?
☐ Yes ☐ No ☐ Don't know

Explain what is wrong with her question.

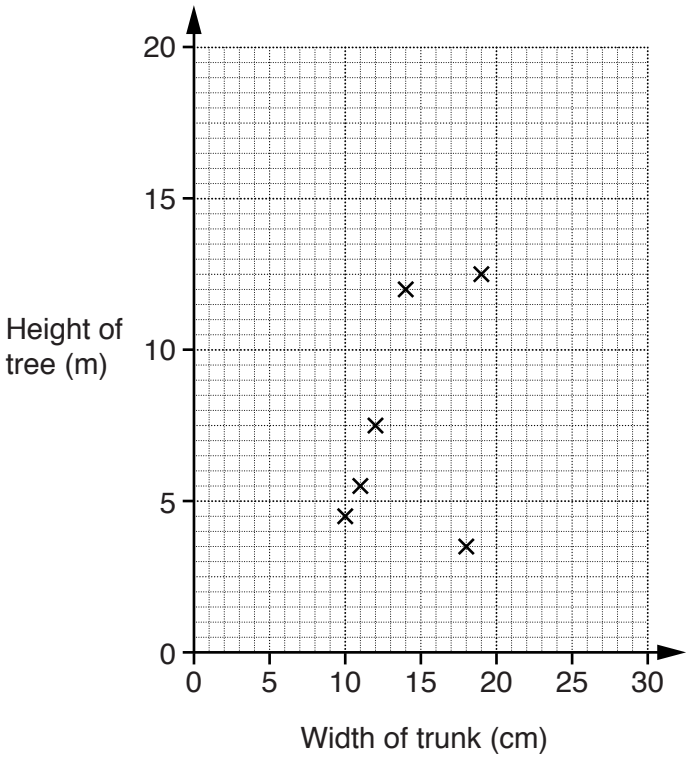
_____

_____ **[1]**

(b) Write a suitable question, with response boxes, to find out how many train journeys a person takes in a month.
Use 20 journeys as a maximum number. **[2]**

18 Amber measures the heights of some young trees and the widths of their trunks.
The results are shown in the table below.

Width of trunk (cm)	10	11	12	14	18	19	22	23	28	29
Height of tree (m)	4.5	5.5	7.5	12	3.5	12.5	11.5	16	15	18



(a) The first six points have been plotted on the scatter diagram.

Complete the diagram by plotting the last four points. **[2]**

(b) State the correlation shown by the scatter diagram.

(b) _____ **[1]**

(c) Use your diagram to describe the relationship between the width of a tree trunk and the height of the tree.

_____ **[1]**

(d) (i) Draw a line of best fit on the diagram. **[1]**

(ii) Amber has a tree with a trunk width of 25 cm.

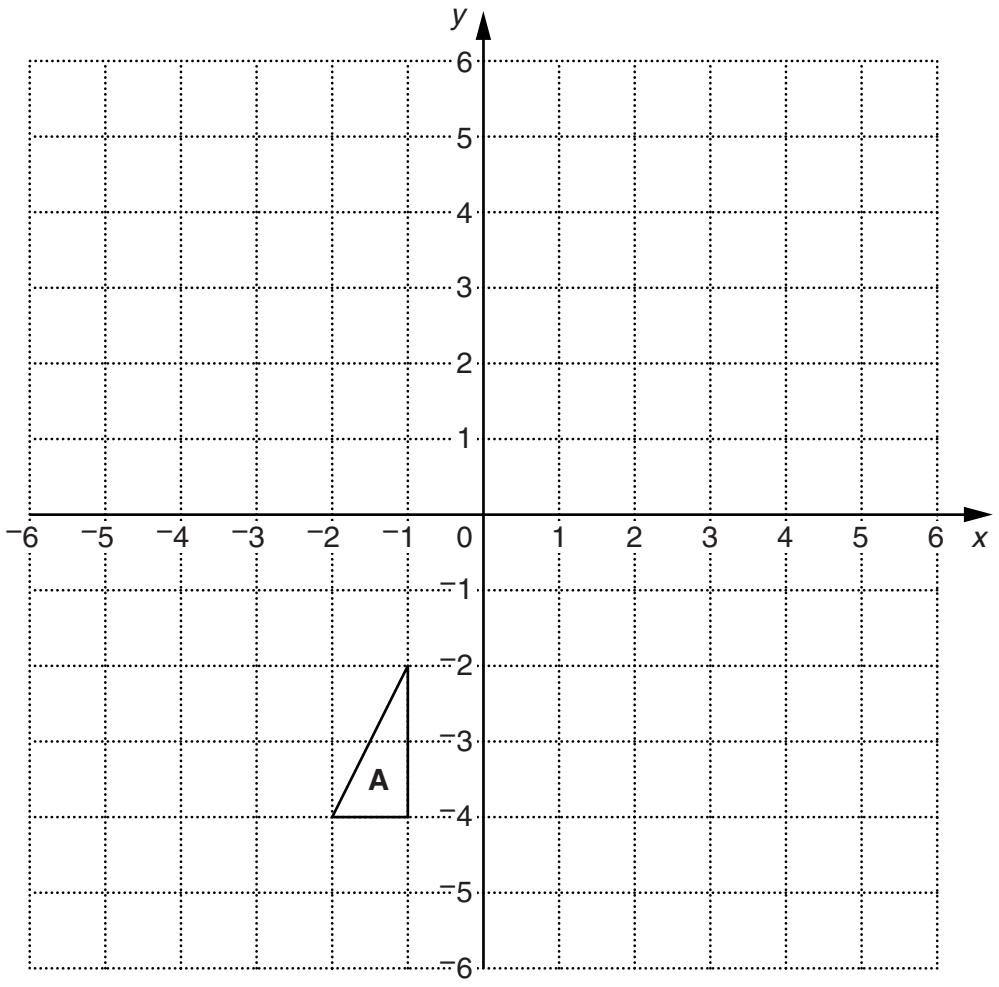
Use your diagram to estimate the height of this tree.

(d)(ii) _____ m **[1]**

(e) One of these trees is from a different species.

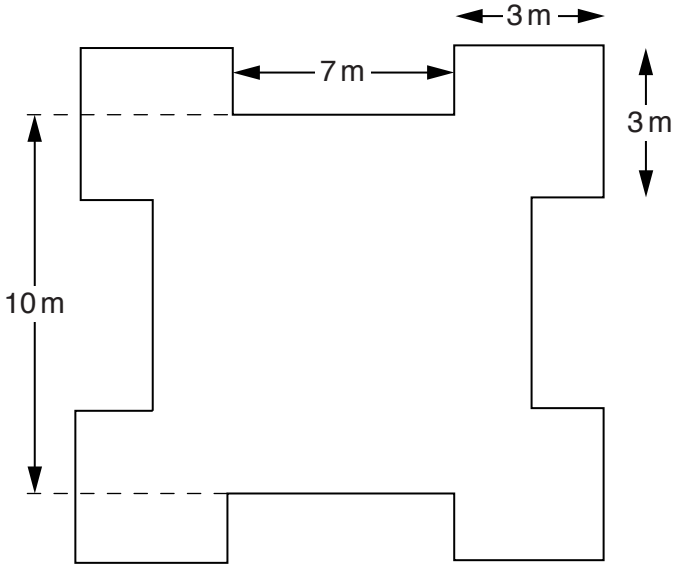
On the diagram put a circle around the point for that tree. **[1]**

19 Shape **A** is drawn on a one-centimetre square grid.



Enlarge shape **A** with scale factor 2 and centre (–3, –5). **[3]**

20 The diagram shows the plan of a castle.
The plan has four lines of symmetry.



Not to scale

Work out the area of the plan.

_____ m^2 **[4]**

END OF QUESTION PAPER