OCR
Oxford Cambridge and RSA

F

Thursday 26 May 2016 – 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

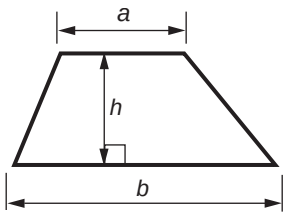
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- Quality of written communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is **100**.
- This document consists of **20** pages. Any blank pages are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

WARNING

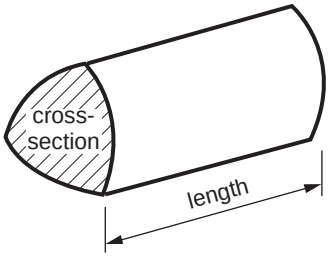
No calculator can be used for this paper

Formulae Sheet: Foundation Tier

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



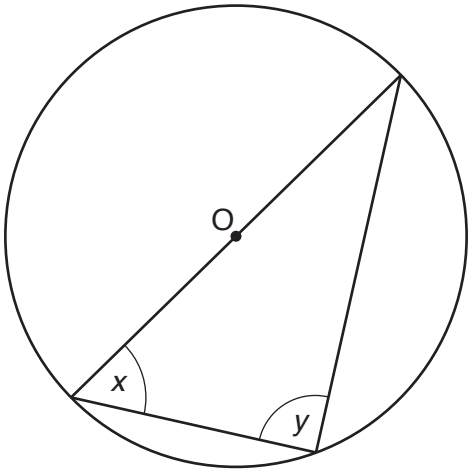
Volume of prism = (area of cross-section) × length



PLEASE DO NOT WRITE ON THIS PAGE

Answer **all** the questions.

1 This is a triangle in a circle with centre O.



(a) What type of angle is *y*?
Choose from the names in this box.

obtuse	acute	right angle	reflex

(a) ..... **[1]**

(b) Measure and write down

(i) angle *x*,

(b)(i) .....° **[1]**

(ii) the diameter of the circle.

(ii) ..... cm **[1]**

(c) Jake says:

'The circumference of the circle is bigger than the perimeter of the triangle.'

Without measuring, say if Jake is correct.
Explain your answer.

.....

.....

..... **[1]**

2 Cerys goes with her three children to the cinema.

(a) An adult ticket costs £8.25 and a child ticket costs £7.45.

How much does Cerys pay for the tickets altogether?

(a) £ ..... **[2]**

(b) Cerys buys drinks and popcorn for £12.35.
She pays for them with a £20 note.

How much change does she get?

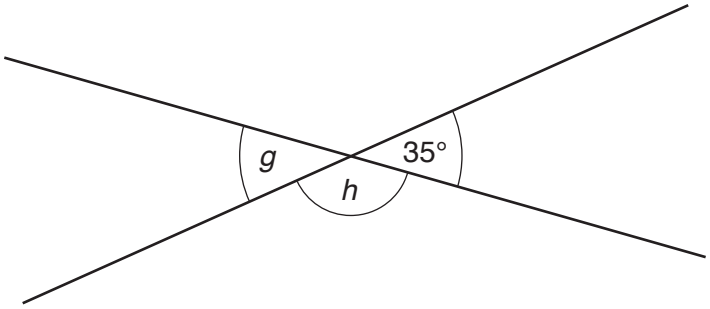
(b) £ ..... **[2]**

(c) This is the afternoon programme for the cinema.

	Screen 1	**Screen 2**	**Screen 3**
Film	Incredible Magic	Movie 57	Crazy People
Start	14:00	14:20	14:40
Finish	16:13		16:37
Length of film	2 hours 13 min	1 hour 45 min	

Complete the table. **[2]**

3 **(a)** This diagram shows two straight lines crossing.



Not to scale

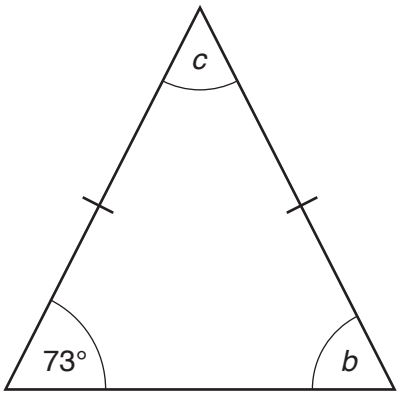
(i) Work out angle *g*.

(a)(i) ..... ° **[1]**

(ii) Work out angle *h*.

(ii) ..... ° **[1]**

(b) This diagram shows an isosceles triangle.



Not to scale

(i) Work out angle *b*.

(b)(i) ..... ° **[1]**

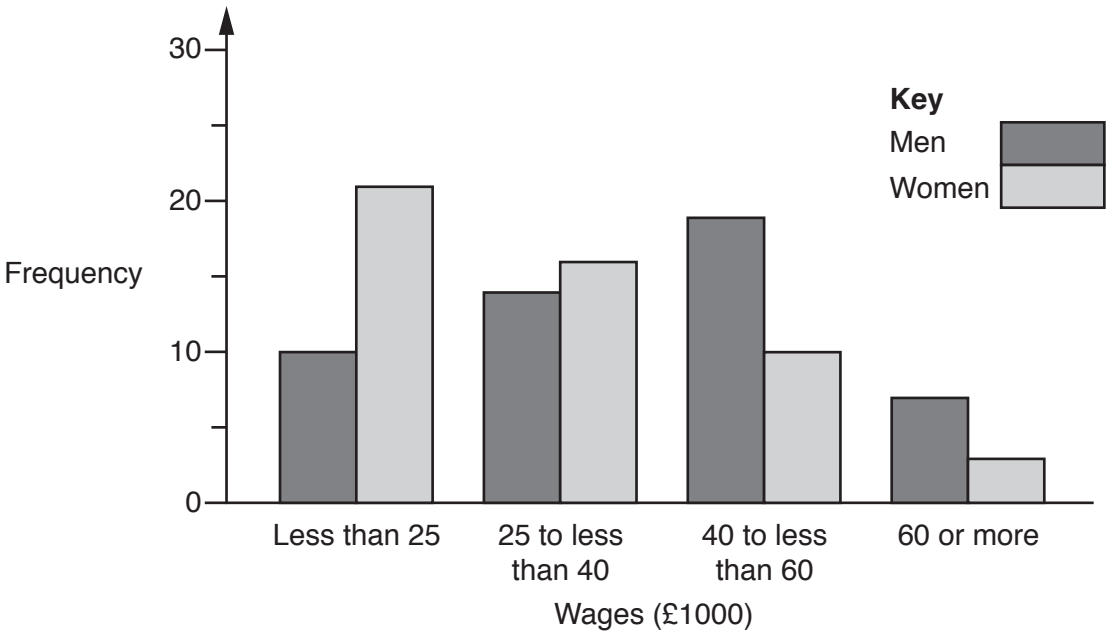
(ii) Work out angle *c*.

(ii) ..... ° **[2]**

4 Fifty men and fifty women were asked:

'How much did you earn last year?'

The results are recorded in this bar chart.



(a) (i) How many men earned from £25 000 to less than £40 000?

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

(ii) What is the total number of men and women earning £60 000 or more?

(ii) ..... **[1]**

(iii) Work out the **percentage** of women who earned less than £40 000.

(iii) ..... % **[2]**

(iv) Compare the wages of the fifty men and fifty women.
Give figures to support your answer.

.....

.....

..... **[2]**

(b) Eleven of the men and women work for the Health Service.
Their wages, in thousands of pounds, were:

16 34 23 22 15 25 16 27 61 23 16

(i) Work out their median wage.

(b)(i) £ ..... thousand **[2]**

(ii) Work out the range of their wages.

(ii) £ ..... thousand **[1]**

(iii) Work out the mode of their wages.

(iii) £ ..... thousand **[1]**

5 Write down the next term in each of these sequences.

(a) 5 8 11 14 17

(a) ..... **[1]**

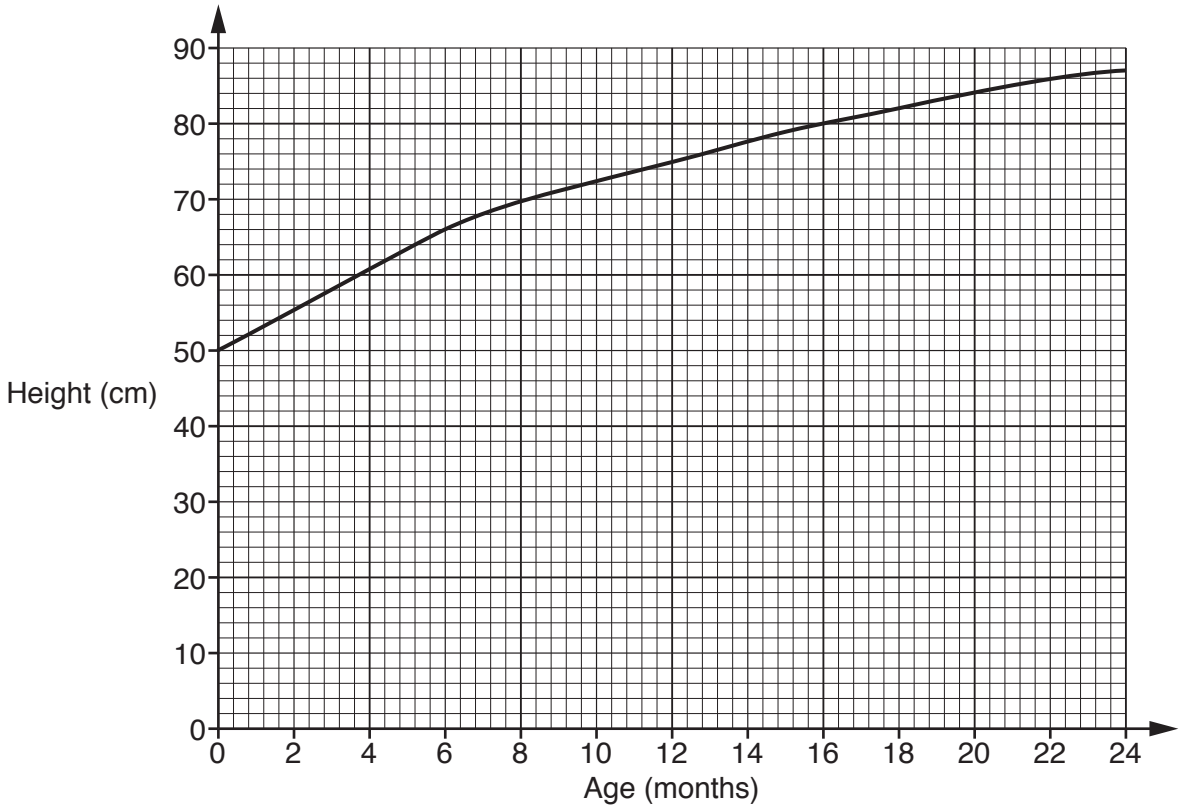
(b) 3 6 12 24 48

(b) ..... **[1]**

(c) 4 5 7 10 14

(c) ..... **[1]**

6 This graph shows Riley's height for the first two years of his life.



(a) How tall was Riley when he was born?

(a) ..... cm **[1]**

(b) How tall was Riley on his first birthday?

(b) ..... cm **[1]**

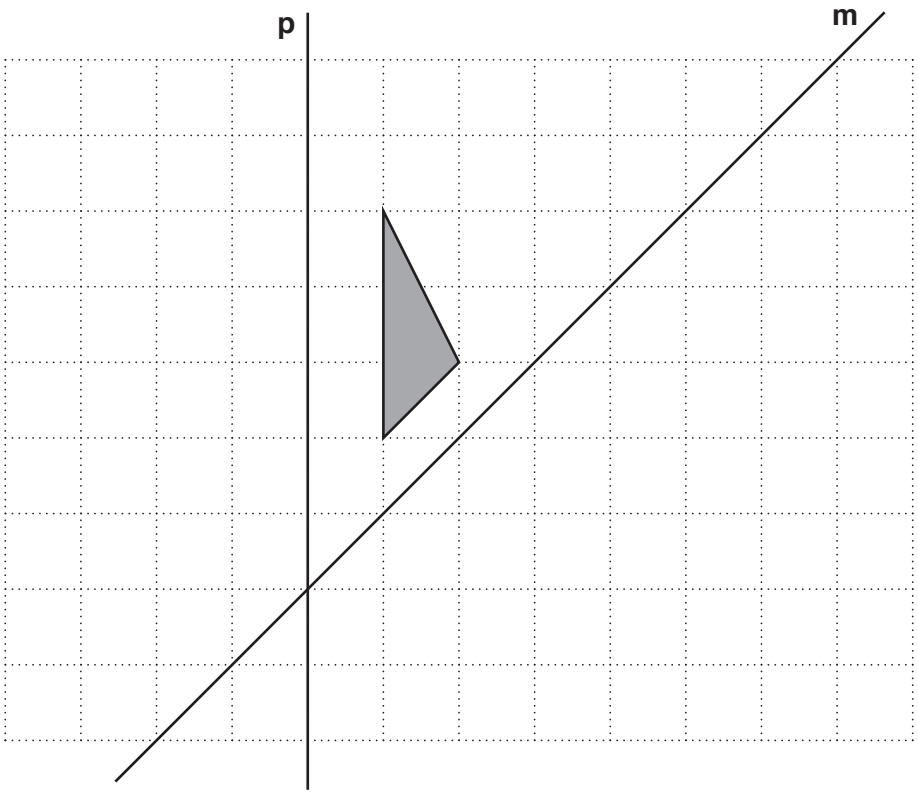
(c) How old was Riley when he was 71 cm tall?

(c) ..... months **[1]**

(d) How much taller did he grow between 15 months and 21 months?

(d) ..... cm **[1]**

7 This is a triangle drawn on a grid.



(a) What is the mathematical name of the triangle?
Choose from the names in this box.

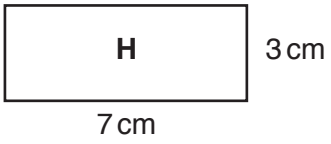
isosceles	equilateral	right-angled	scalene

(a) ..... **[1]**

(b) Reflect the triangle in line **p** on the grid. **[1]**

(c) Reflect the triangle in line **m** on the grid. **[2]**

8 Rectangle **H** has length 7 cm and width 3 cm.

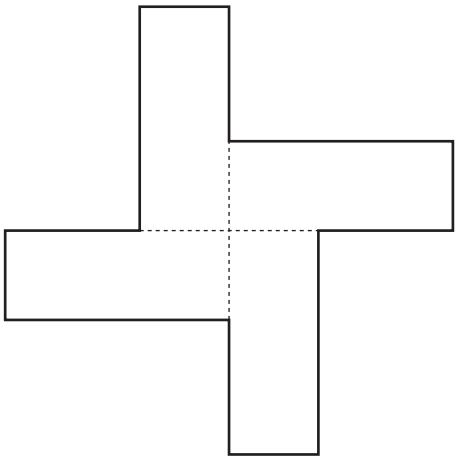


Not to scale

(a) Work out the area of the rectangle.

(a) ..... cm^2 **[1]**

(b) This shape is made from four rectangles each of which is identical to **H**.



Not to scale

(i) How many lines of symmetry does this shape have?

(b)(i) ..... **[1]**

(ii) What is the order of rotation symmetry of this shape?

(ii) ..... **[1]**

(iii) What is the perimeter of this shape?

(iii) ..... cm **[3]**

9 **(a)** Write these fractions as decimals.

(i) $\frac{3}{4}$

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

(ii) $\frac{21}{100}$

(ii) ..... **[1]**

(b) $\frac{5}{8} = 0.625$

Use this result to work out $\frac{1}{8}$ as a decimal.

(b) ..... **[2]**

10 **(a)** Work out the value of $3x + 5y$ when $x = 7$ and $y = 6$.

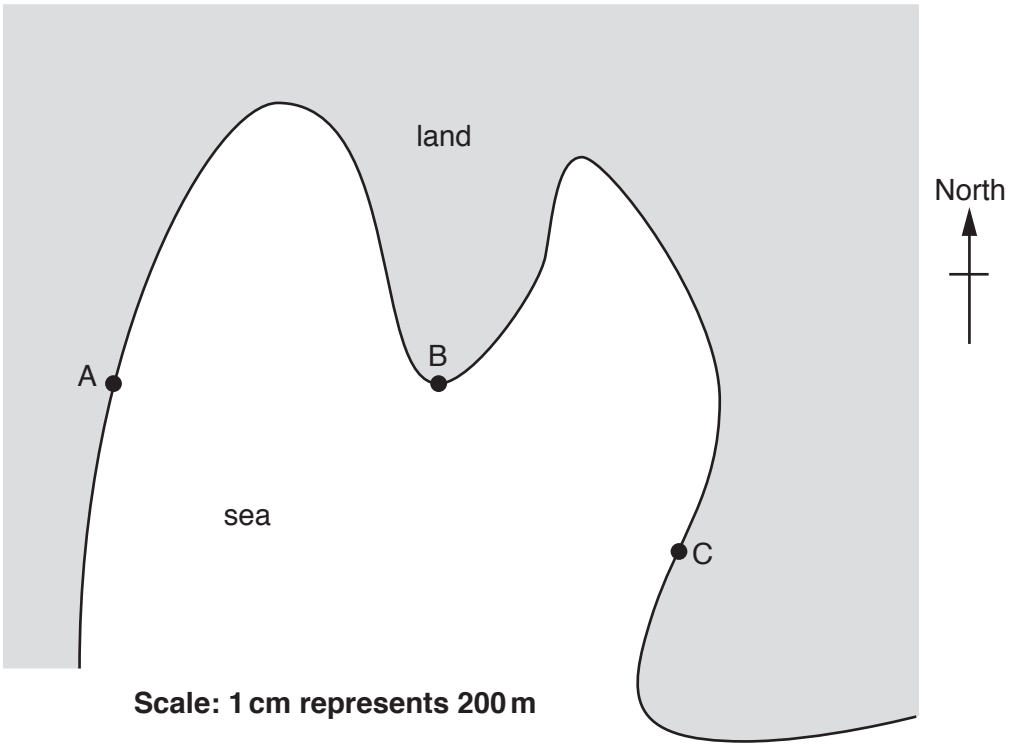
(a) ..... **[2]**

(b) A company charges £20 per day to hire a car plus 50 pence for each mile travelled. Samira hired a car at these rates, for 3 days. She travelled 420 miles.

How much did it cost her to hire the car?

(b) £ ..... **[3]**

11 This is a map of a coastal area.



Oliver went sailing.

(a) He sailed directly from A to B.

(i) In which compass direction did he sail?

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

(ii) How far did he sail?

(ii) ..... m **[2]**

(b) He then sailed directly from B to C.

On what bearing did he sail?

(b) .....° **[1]**

12 **(a)** Simplify fully.

$$\frac{12}{30}$$

(a) ..... **[1]**

(b) Write this improper fraction as a mixed number.

$$\frac{23}{6}$$

(b) ..... **[1]**

(c) Write these fractions in order of size, smallest first.

$$\frac{37}{40} \qquad \frac{19}{20} \qquad \frac{9}{10} \qquad \frac{3}{4}$$

(c) .... **[2]**
smallest

(d) Work out.

$$\frac{3}{7} + \frac{1}{2}$$

(d) ..... **[2]**

13 Work out.

(a) $\sqrt{900}$

(a) ..... **[1]**

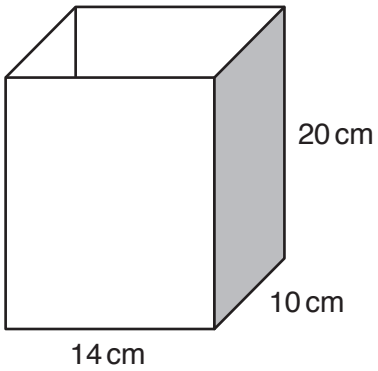
(b) 14^2

(b) ..... **[2]**

(c) 2^3

(c) ..... **[1]**

14 Zoe needs a container that can hold at least 2.5 litres of water.
This container is a cuboid.



$1000\,cm^3$ = 1 litre

Could this container hold the amount of water that Zoe wants?
Show working to support your answer.

.....

..... **[4]**

15 **(a)** A bag contains only pink counters and orange counters.
There are 7 pink counters and 2 orange counters.

Mia takes a counter from the bag without looking.

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

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

(ii) What is the probability that the counter is green?

(ii) ..... **[1]**

(b) A different bag contains only red counters, blue counters and yellow counters.
David takes a counter from the bag without looking.

This table shows the number of counters of each colour and the probability that they are picked.

	Number of counters	**Probability**
Red		
Blue		$\frac{1}{2}$
Yellow	9	$\frac{3}{10}$

Complete the table. **[3]**

16 **(a)** The table summarises information about the visitors to a library on one day.

	Under 18	**18 to 60**	**Over 60**	**Total**
Male	38	12		100
Female	56		45	150
Total			95	250

(i) Complete the table. **[2]**

(ii) Find the ratio of male to female visitors.
Write the ratio in its simplest form.

(a)(ii) ..... : ..... **[2]**

(iii) What fraction of the total number of visitors were females aged over 60?
Write the fraction in its simplest form.

(iii) ..... **[2]**

(b) The library holds an event.
Tickets for the event cost £7.95 each.
There are 87 tickets sold for the event.

Estimate the total amount of money received from ticket sales.
Show clearly the approximations you use.

(b) £ ..... **[2]**

17* George takes two friends out for a meal.
George has two vouchers that he can use to save money on the price of the meal.

Voucher A	**Voucher B**
20% off the food bill	15% off the food **and** drink bill

He can only use **one** of these vouchers.
George decides which voucher to use at the end of the meal when he sees the bill.
He wants to pay as little as possible.

This is what they had and the cost of one serving of each item.

Food		**Drinks**	
1 Fish and chips	£12.45	2 Lemonades	£2.45 each
1 Pizza	£11.50	1 Cola	£2.60
1 Burger and chips	£12.45		
3 Ice creams	£3.70 each		

Which voucher should George use and how much does he pay for the meal?

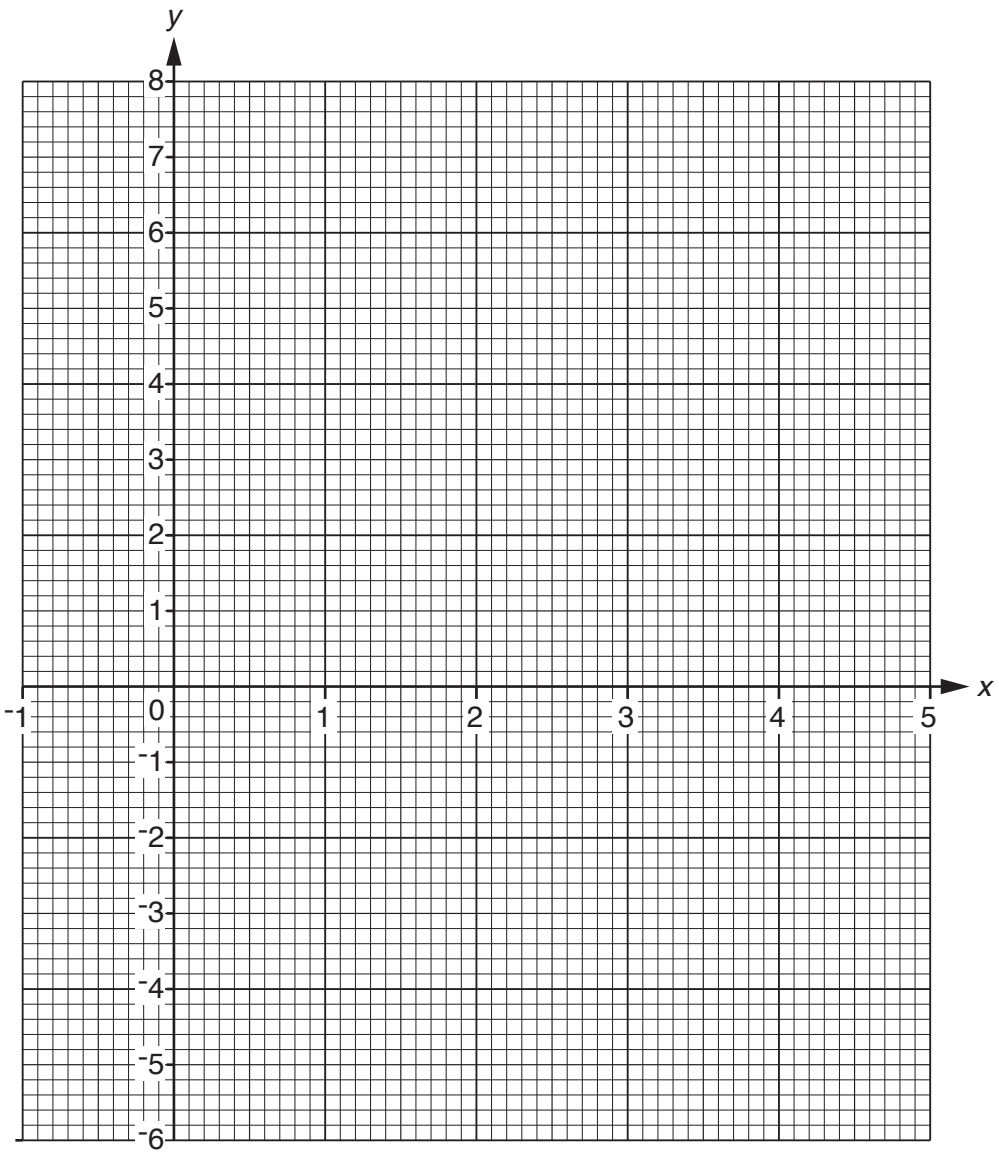
..... **[5]**

18 **(a)** Complete the table for $y = x^2 - 4x$.

x	$^-1$	0	1	2	3	4	5
y		0	$^-3$	$^-4$	$^-3$	0	

[2]

(b) Draw the graph of $y = x^2 - 4x$ for values of x from $^-1$ to 5.



[2]

(c) Use your graph to solve the equation $x^2 - 4x = 3$.

(c) x = ... or x = ... **[2]**

19 **(a)** Work out the size of the exterior angle of a regular 9-sided polygon.

(a) .....° **[2]**

(b) Hence work out the size of the interior angle of a regular 9-sided polygon.

(b) .....° **[1]**

20 Sue has three children, Alex, Dan and Eva. She gives them pocket money each week.

Dan gets twice as much pocket money as Alex.
Eva gets £5 more pocket money than Alex.
Sue gives a total of £35 each week.

Work out how much pocket money Alex gets each week.

£ ..... **[4]**

END OF QUESTION PAPER