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| Candidate surname    |                      | Other names          |                      |
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**Pearson Edexcel International GCSE**

**Wednesday 3 June 2026**

Morning (Time: 2 hours)

Paper reference **4MA1/2HR**

**Mathematics A**

**PAPER 2HR**

**Higher Tier**



**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

## Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*
- **Calculators may be used.**
- You must **NOT** write anything on the formulae page.
- Anything you write on the formulae page will gain NO credit.

## Information

- The total mark for this paper is 100.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

## Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ►

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# International GCSE Mathematics

## Formulae sheet – Higher Tier

### Arithmetic series

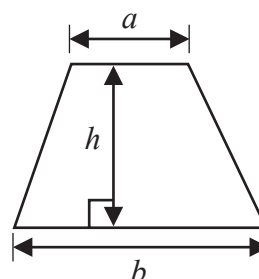
Sum to  $n$  terms,  $S_n = \frac{n}{2} [2a + (n-1)d]$

### The quadratic equation

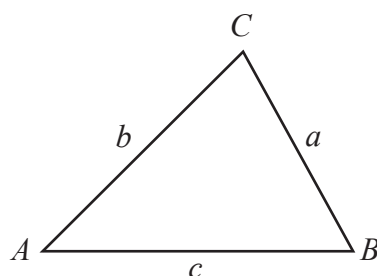
The solutions of  $ax^2 + bx + c = 0$  where  $a \neq 0$  are given by:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

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



### Trigonometry



In any triangle  $ABC$

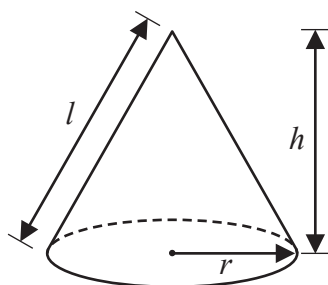
Sine Rule  $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule  $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle =  $\frac{1}{2}ab \sin C$

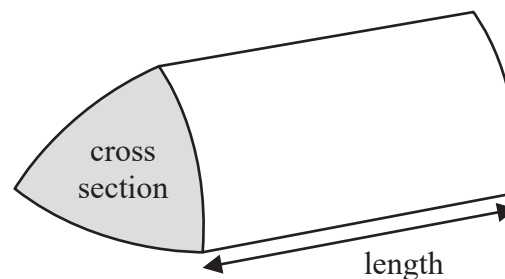
Volume of cone =  $\frac{1}{3}\pi r^2 h$

Curved surface area of cone =  $\pi r l$



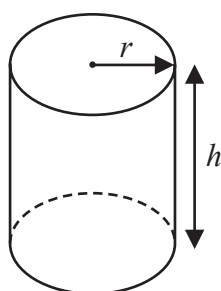
Volume of prism

= area of cross section  $\times$  length



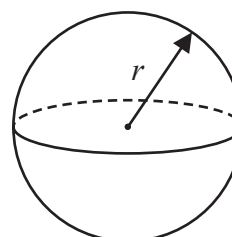
Volume of cylinder =  $\pi r^2 h$

Curved surface area of cylinder =  $2\pi r h$



Volume of sphere =  $\frac{4}{3}\pi r^3$

Surface area of sphere =  $4\pi r^2$



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Answer ALL TWENTY SEVEN questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 The diagram shows a right-angled triangle.

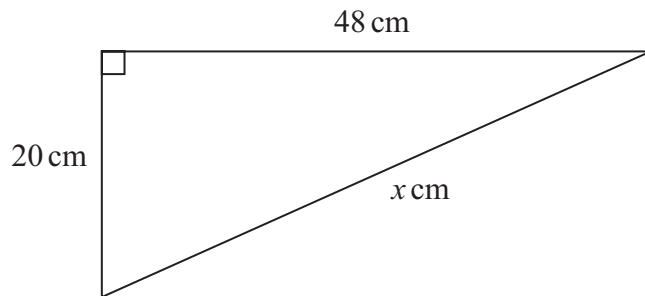


Diagram **NOT**  
accurately drawn

Work out the value of  $x$

$x =$  .....

(Total for Question 1 is 3 marks)



- 2 Here are the first five terms of an arithmetic sequence.

14      8      2      -4      -10

Find an expression, in terms of  $n$ , for the  $n$ th term of this sequence.

(Total for Question 2 is 2 marks)

- 3  $\mathcal{E} = \{\text{integers from 1 to 12}\}$   
 $A = \{\text{factors of 12}\}$

List the members of the set  $A'$

(Total for Question 3 is 1 mark)



- 4 (a) Solve  $3(x + 2) = 1 - 5x$   
Show clear algebraic working.

$$x = \dots\dots\dots (3)$$

$$P = c^2 - 5d$$

- (b) Work out the value of  $P$  when  $c = -7$  and  $d = 3$

$$P = \dots\dots\dots (2)$$

- (c) Simplify  $m^0$

$$\dots\dots\dots (1)$$

- (d) Simplify  $(4r^2t)^3$

$$\dots\dots\dots (2)$$

(Total for Question 4 is 8 marks)



5 Sarah and Dej each give some money to charity **A** and to charity **B**

Sarah shares \$400 between charity **A** and charity **B** in the ratio 2 : 3

Dej shares \$375 between the two charities.

He gives twice as much money to charity **B** as he gives to charity **A**

Dej gives more money to charity **B** than Sarah gives to charity **B**

How much more?

\$.....

(Total for Question 5 is 5 marks)



- 6 Mika has six cards.  
There is a number on each card.  
The cards are arranged with the numbers in order of size.  
Three of the numbers are hidden.

|  |   |  |   |  |   |
|--|---|--|---|--|---|
|  | 3 |  | 7 |  | 8 |
|--|---|--|---|--|---|

The mode of the six numbers is 8  
The range of the six numbers is 7  
The sum of the six numbers is 31

Work out the median of the six numbers.

(Total for Question 6 is 4 marks)



7 (a) Write  $4 \times 10^{-5}$  as an ordinary number.

.....  
(1)

(b) Work out  $(6 \times 10^{158}) \times (2 \times 10^{72})$   
Give your answer in standard form.

.....  
(2)

(Total for Question 7 is 3 marks)



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- 8 Lauren's salary increased by 4%  
After the increase, her salary was 36 400 euros.  
Work out Lauren's salary before the increase.

..... euros

(Total for Question 8 is 3 marks)

- 9 Change a speed of 198 kilometres per hour to a speed in metres per second.  
Show your working clearly.

..... m/s

(Total for Question 9 is 3 marks)



10 The diagram shows a solid cylinder.

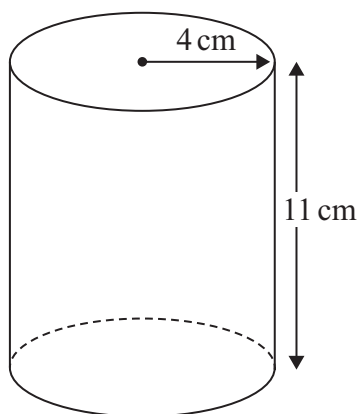


Diagram **NOT**  
accurately drawn

The cylinder has radius 4 cm and height 11 cm  
The cylinder is made from wood with a density of  $0.6 \text{ g/cm}^3$

Work out the mass of the cylinder.  
Give your answer correct to 3 significant figures.

..... g

(Total for Question 10 is 3 marks)

- 11 The diagram shows a square  $ABCD$  and a right-angled triangle  $EFG$

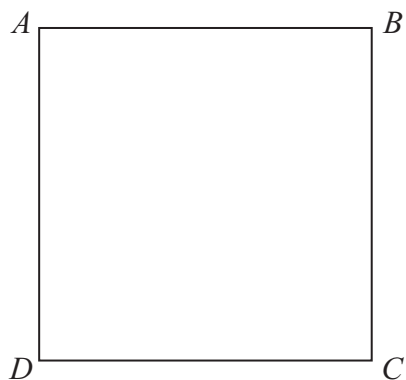
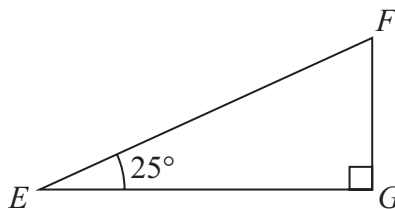


Diagram **NOT**  
accurately drawn

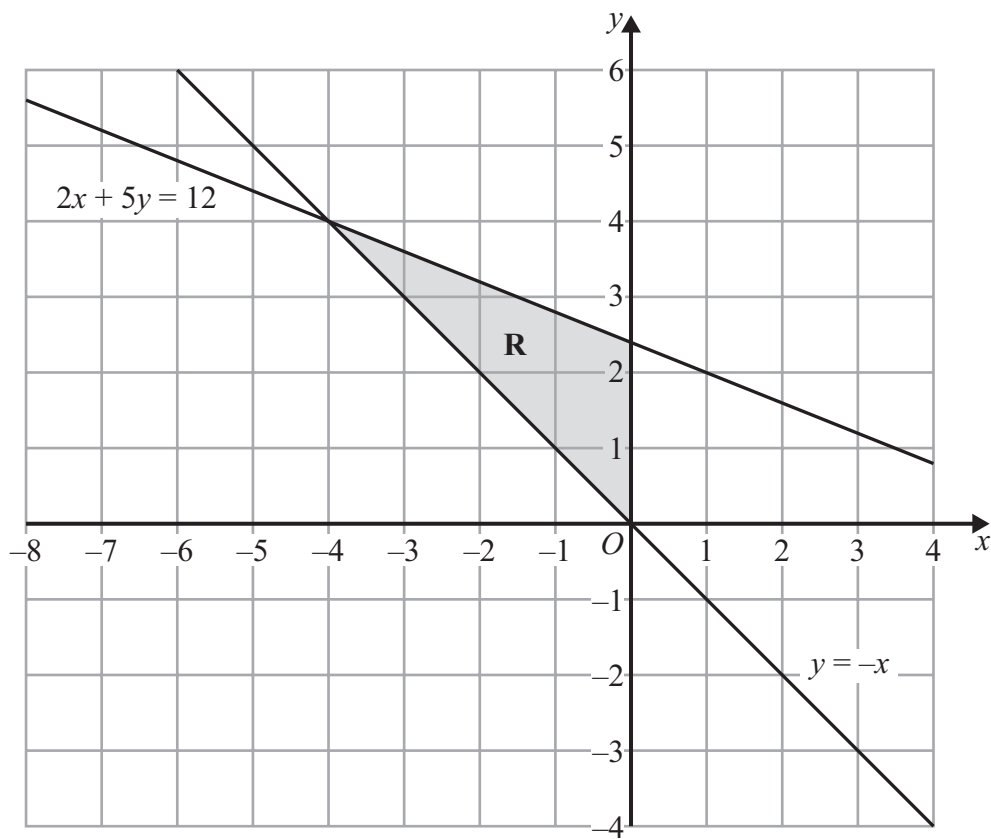


The area of square  $ABCD$  is  $36\text{ cm}^2$   
 $DC = EG$

Work out the area of triangle  $EFG$   
Give your answer correct to one decimal place.  
Show your working clearly.

.....  $\text{cm}^2$

(Total for Question 11 is 5 marks)



The region **R**, shown shaded in the diagram, is bounded by the  $y$ -axis and the straight lines with equations

$$y = -x$$

$$2x + 5y = 12$$

Write down the three inequalities that define **R**

.....

.....

.....

(Total for Question 12 is 3 marks)



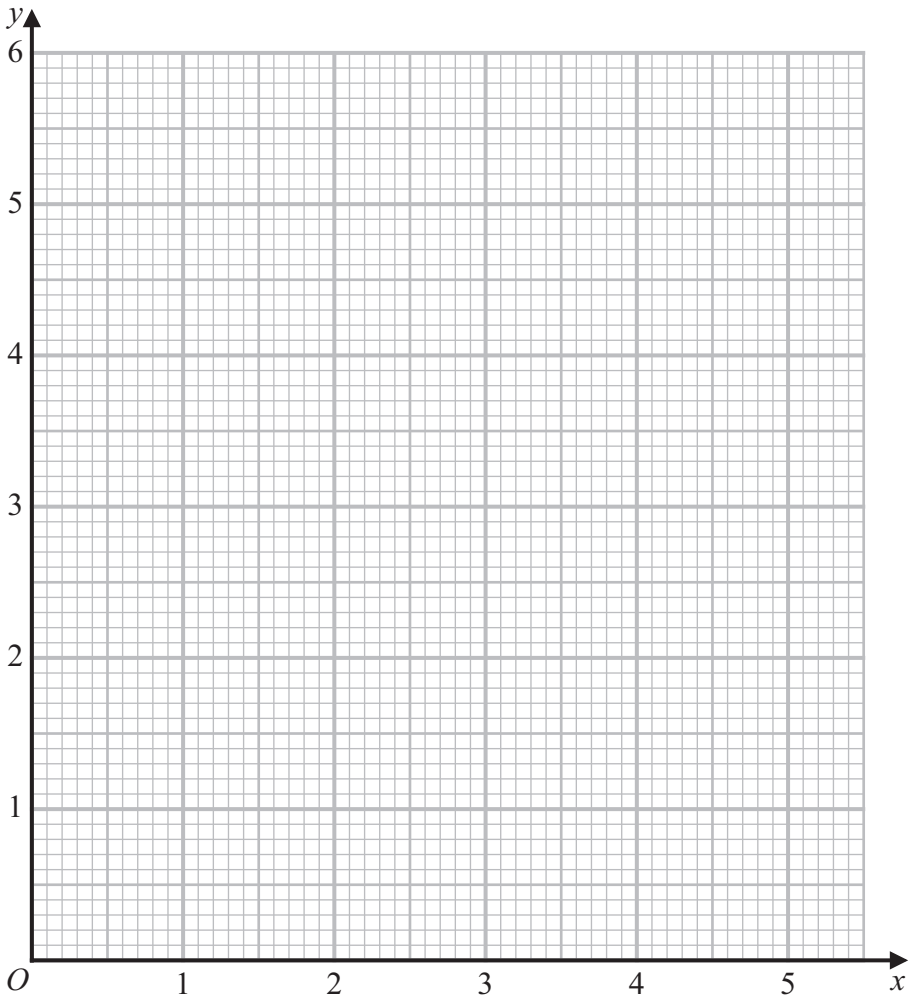
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13 (a) Complete the table of values for  $y = x + \frac{1}{x}$

|     |      |     |   |     |      |   |   |
|-----|------|-----|---|-----|------|---|---|
| $x$ | 0.25 | 0.5 | 1 | 2   | 3    | 4 | 5 |
| $y$ | 4.25 |     |   | 2.5 | 3.33 |   |   |

(2)

(b) On the grid, draw the graph of  $y = x + \frac{1}{x}$  for  $0.25 \leq x \leq 5$



(2)

(Total for Question 13 is 4 marks)



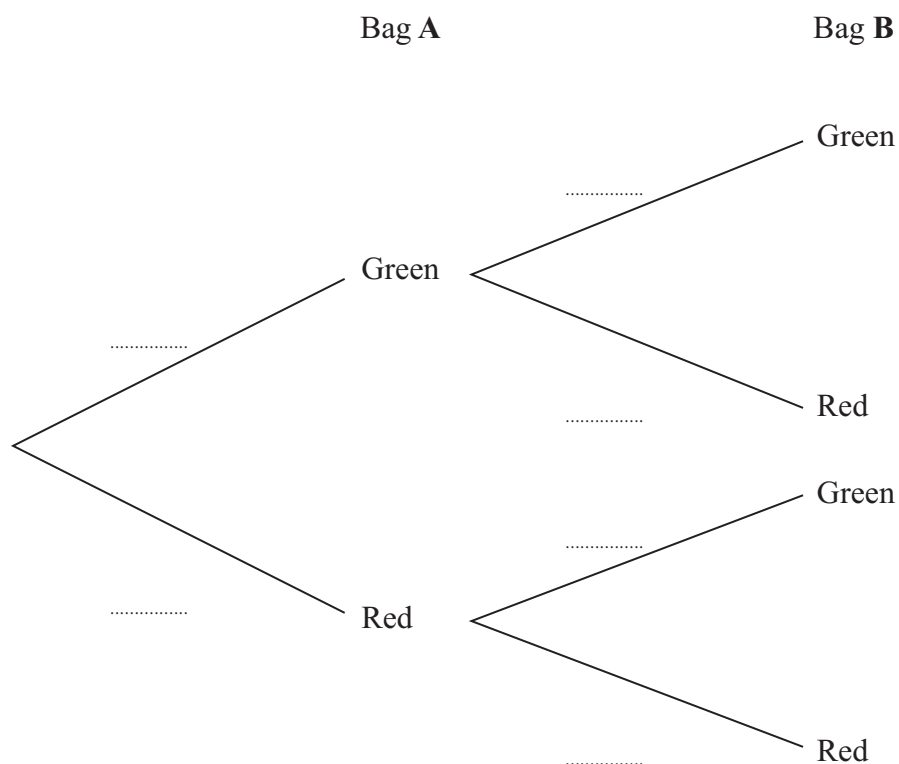
**14** Pras has 2 bags of counters, bag **A** and bag **B**

In bag **A**, there are 4 green counters and 3 red counters.

In bag **B**, there are 5 green counters and 1 red counter.

Pras is going to take at random a counter from bag **A** and a counter from bag **B**

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Pras will take two green counters.

(2)



Pras also has a third bag of counters, bag **C**

In bag **C**, there are only green counters and red counters.

All the original counters are back in bag **A** and bag **B**

Pras is going to take at random a counter from bag **A**, a counter from bag **B** and a counter from bag **C**

The probability that Pras will take three red counters is  $\frac{3}{70}$

(c) Work out the probability that Pras will take 1 green counter and 2 red counters.

.....  
(4)

(Total for Question 14 is 8 marks)



- 15 Mina recorded the times taken, in minutes, by 11 people to complete a puzzle.  
Here are her results.

2    2    3    6    7    9    9    12    13    17    20

Find the interquartile range of these times.

..... minutes

(Total for Question 15 is 2 marks)

16  $\left(\frac{1}{\sqrt{a}}\right)^6 = a^n$

Work out the value of  $n$

$n =$  .....

(Total for Question 16 is 2 marks)



17 Use algebra to show that  $0.\dot{8}1\dot{4} = \frac{22}{27}$

(Total for Question 17 is 2 marks)

18 Here are two vectors.

$$\overrightarrow{AB} = \begin{pmatrix} 4 \\ 5 \end{pmatrix} \quad \overrightarrow{CB} = \begin{pmatrix} -2 \\ 8 \end{pmatrix}$$

Find  $\overrightarrow{AC}$  as a column vector.

$$\overrightarrow{AC} = \begin{pmatrix} \dots\dots\dots \\ \dots\dots\dots \end{pmatrix}$$

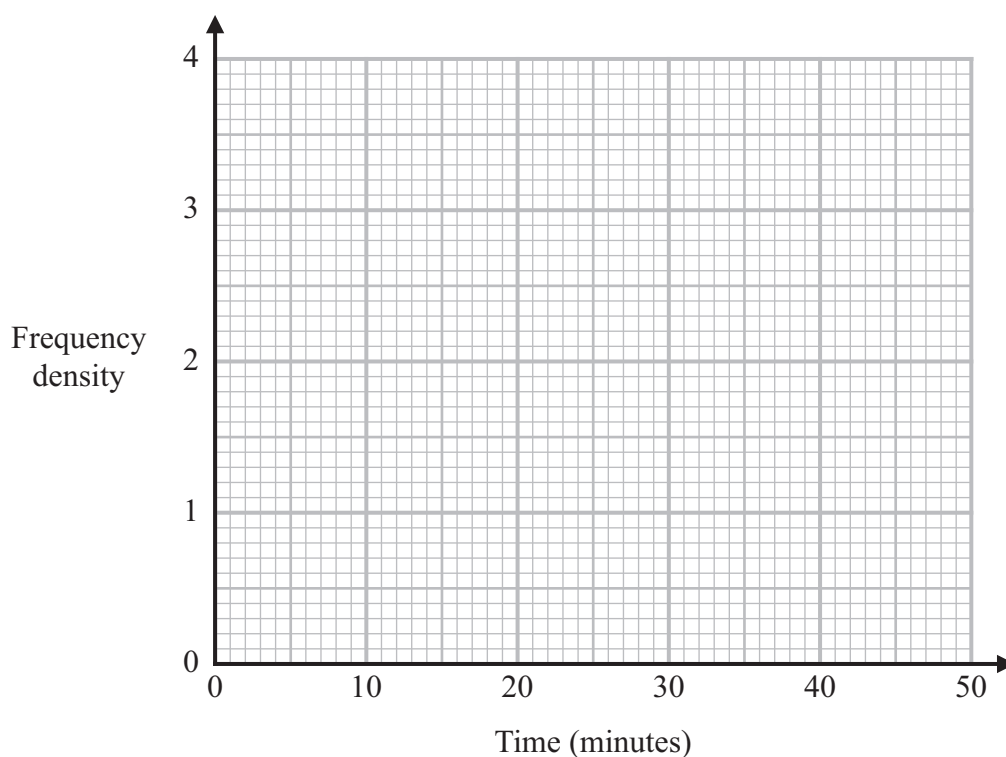
(Total for Question 18 is 2 marks)



- 19 The table gives information about the times, in minutes, some people spent waiting to go on a rollercoaster.

| Time ( $t$ minutes) | Frequency |
|---------------------|-----------|
| $0 < t \leq 20$     | 14        |
| $20 < t \leq 25$    | 12        |
| $25 < t \leq 35$    | 32        |
| $35 < t \leq 50$    | 30        |

On the grid, draw a histogram for this information.



(Total for Question 19 is 3 marks)



20 Make  $x$  the subject of  $y = \frac{3x+5}{4-2x}$

(Total for Question 20 is 3 marks)

21  $p = \frac{d-e}{f}$

$d = 6.6$  correct to 1 decimal place

$e = 2.8$  correct to 1 decimal place

$f = 0.47$  correct to 2 decimal places

Calculate the lower bound for the value of  $p$

Give your answer correct to 3 significant figures.

Show your working clearly.

(Total for Question 21 is 3 marks)



**22** Solve the simultaneous equations

$$\begin{aligned}y^2 &= x^2 + 7 \\ y &= 3x - 5\end{aligned}$$

Show clear algebraic working.

(Total for Question 22 is 5 marks)



23 **K**, **L** and **M** are three similar solids.

$$\text{volume of } \mathbf{K} : \text{volume of } \mathbf{L} = 125 : 216$$

$$\text{surface area of } \mathbf{K} : \text{surface area of } \mathbf{M} = 4 : 9$$

The height of **M** is  $y\%$  greater than the height of **L**

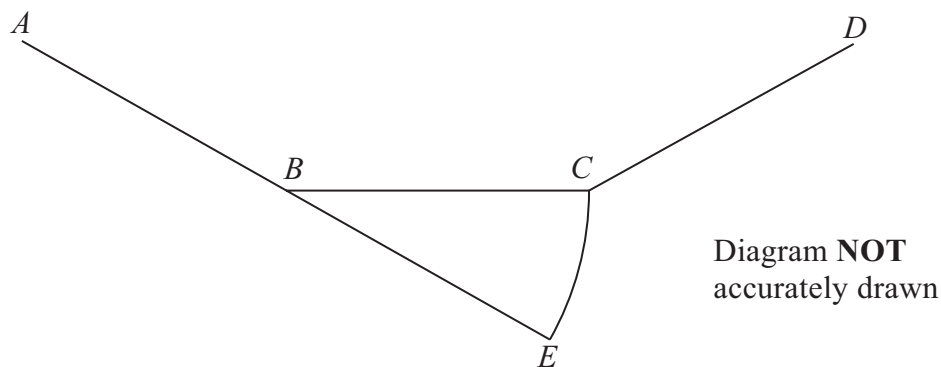
Work out the value of  $y$

Show your working clearly.

$$y = \dots\dots\dots$$

(Total for Question 23 is 5 marks)





$AB$ ,  $BC$  and  $CD$  are three sides of a regular polygon.  
 $ABE$  is a straight line.

$BCE$  is a sector of a circle with centre  $B$  and radius 4.5 cm

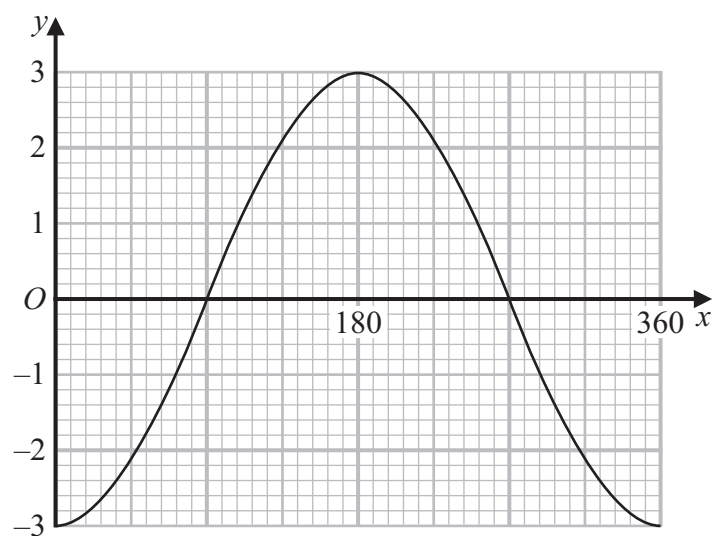
The length of arc  $CE$  is  $\frac{3}{10}\pi$  cm

Work out the sum of the interior angles of the regular polygon.

(Total for Question 24 is 4 marks)



25 The graph of  $y = a \sin(x + b)^\circ$  for  $0 \leq x \leq 360$  is drawn on the grid below.



Given that  $a < 0$  and that  $0 < b < 360$

(a) find the value of  $a$  and the value of  $b$

$a = \dots\dots\dots$

$b = \dots\dots\dots$   
(2)

A curve has equation  $y = f(x)$

The point  $T$  with coordinates  $(p, q)$  lies on the curve.

(b) Find the coordinates of the image of  $T$  on the curve with equation

$$y = f(2x) + 5$$

Give your coordinates in terms of  $p$  and  $q$

$(\dots\dots\dots, \dots\dots\dots)$   
(2)

(Total for Question 25 is 4 marks)

26 Here are the first four terms of an arithmetic series.

$$(k + 2) \quad (k + 5) \quad (k + 8) \quad (k + 11)$$

The sum of the first  $2n$  terms of the series is 4 times the sum of the first  $n$  terms of the series.

Work out the numerical value of the 100th term of the series.  
Show your working clearly.

(Total for Question 26 is 6 marks)



27 Bryan owns a house.

During 2024, the value of Bryan's house increased by  $x\%$

During 2025, the value of Bryan's house increased by  $2x\%$

Overall, during 2024 and 2025, the value of Bryan's house increased by 38.88%

Work out the value of  $x$

Show clear algebraic working.

$x = \dots\dots\dots$

(Total for Question 27 is 4 marks)

**TOTAL FOR PAPER IS 100 MARKS**



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