Write your name here

Surname	Other names

Scholarship Paper 2026

Subject: Mathematics 3

Time: 1 Hour

You must have:
Pen, pencil, calculator, ruler

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name.
- Answer the questions in the spaces provided**.**
  - *there may be more space than you need*.

Information

- The total mark for this paper is **70**
- The marks for **each** question are shown in brackets

Advice

- Keep an eye on the time. Use the 60 marks in 60 minutes as a guide.
- Write your answers neatly and in good English.
- Try to answer every question, but read the question carefully before you start to answer it.
- Check your answers if you have time at the end.

Q1. The diagram shows sector *OPQ* of a circle, centre *O*

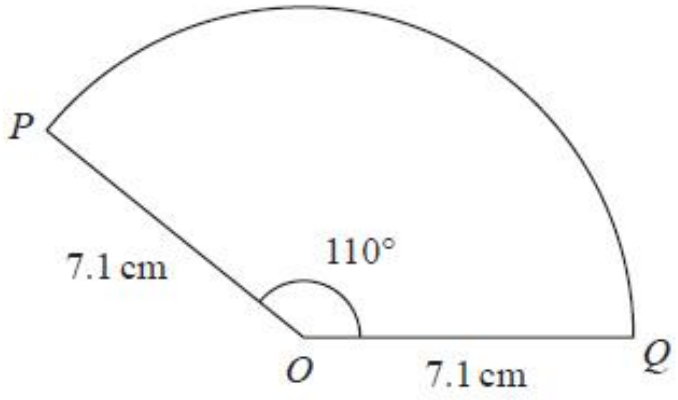


Diagram **NOT** accurately drawn

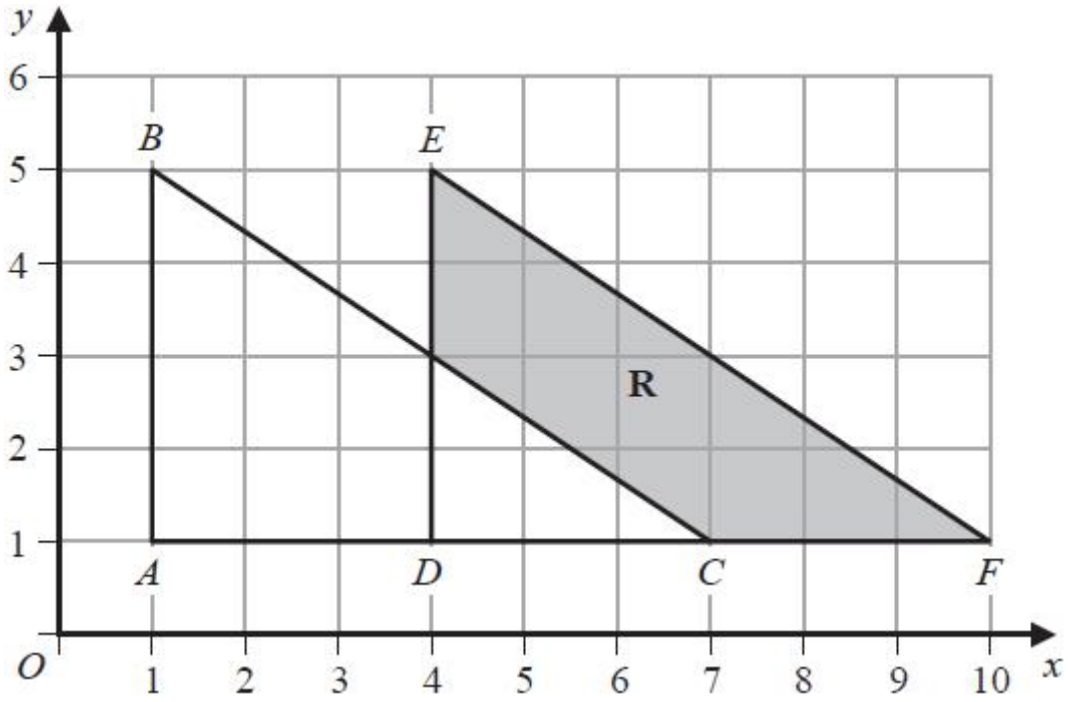
OP = *OQ* = 7.1 cm Angle *POQ* = 110°

Calculate the area of sector *OPQ*
Give your answer correct to one decimal place.

..... cm^2

(Total for question = 2 marks)

Q2. The diagram shows two congruent triangles, *ABC* and *DEF*, drawn on a centimetre grid.

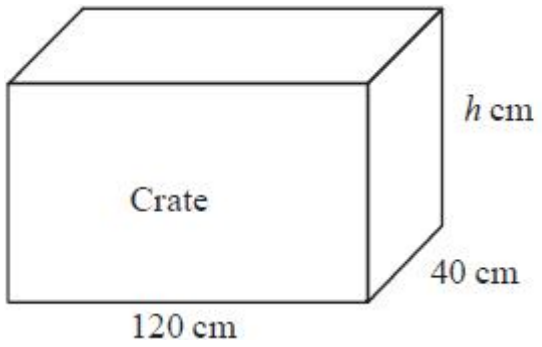


Find the area of the region **R**, shown shaded in the diagram.

..... cm^2

(Total for question = 3 marks)

Q3.



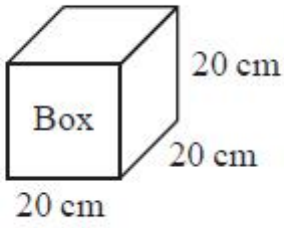


Diagram **NOT** accurately drawn

A crate is in the shape of a cuboid with inside lengths of 120 cm, 40 cm and *h* cm

The crate has a lid.

Micah has 48 boxes.

Each box is in the shape of a cube 20 cm by 20 cm by 20 cm

Micah wants to put all the boxes in the crate and shut the lid.

Work out the least possible value of *h*

.....

(Total for question = 4 marks)

Q4. Steve throws a 6-sided dice.
The dice can land on 1 or on 2 or on 3 or on 4 or on 5 or on 6

He also spins a coin.
The coin can land on heads (H) or on tails (T).

List all the possible combinations he could get.

(Total for question = 2 marks)

Q5. A scientist is investigating the weight of 50 tigers.

Here is some information about these tigers.

	Type of tiger	
	Siberian	**Bengal**
Number of tigers	22	28
Mean weight of tigers (kg)	260	

The mean weight of all 50 tigers is 218 kg

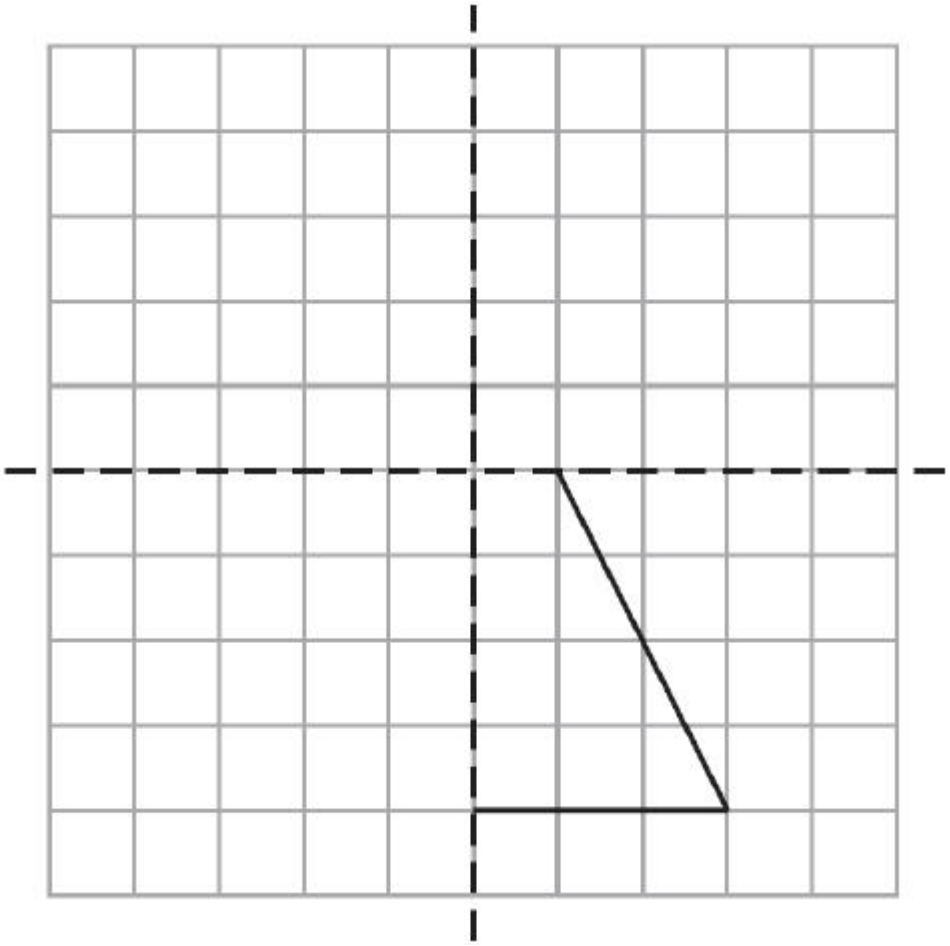
Work out the mean weight of the Bengal tigers.

..... kg

(Total for question = 3 marks)

Q6. A shape has exactly 2 lines of symmetry.
The diagram shows the lines of symmetry and part of the shape.

Draw the complete shape.



(Total for question = 2 marks)

Q7. A bag contains only red beads, blue beads, green beads and yellow beads.

The table gives the probabilities that, when a bead is taken at random from the bag,
the bead will be blue or the bead will be yellow.

Colour	red	blue	green	yellow
Probability		0.24		0.31

The probability that the bead will be green is twice the probability that the bead will be red.

Sofia takes at random a bead from the bag.
She writes down the colour of the bead and puts the bead back into the bag.

She does this 180 times.

Work out an estimate for the number of times she takes a red bead from the bag.

.....

(Total for question = 4 marks)

Q8. 30 adults booked to stay in a hotel.
19 adults booked breakfast
15 adults booked dinner
4 adults did not book breakfast or dinner

Some adults booked breakfast **and** dinner.

Meihui chooses at random two of the 30 adults.

Work out the probability that these two adults each booked breakfast **and** dinner.

.....

(Total for question = 4 marks)

Q9. *ABCD* and *EFGH* are similar quadrilaterals.

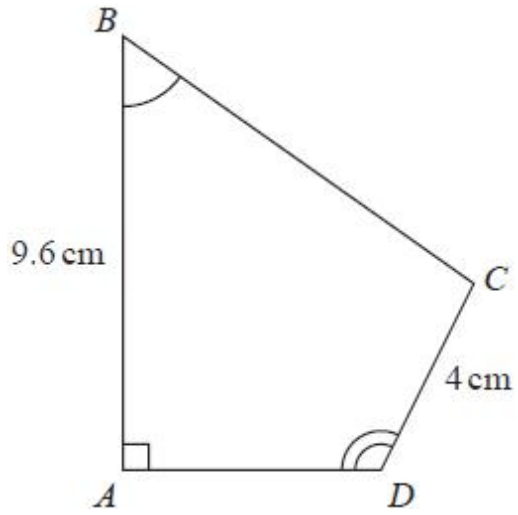
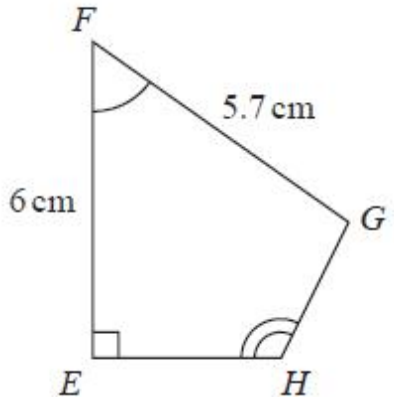


Diagram **NOT** accurately drawn



(a) Work out the length of *GH*

..... cm

(2)

(b) Work out the length of *BC*

..... cm

(2)

(Total for question = 4 marks)

Q10. Change a speed of *w* metres per second to a speed in kilometres per hour.

Give your answer in terms of *w* in its simplest form.

..... kilometres per hour

(Total for question = 3 marks)

Q11. The diagram shows a trapezium, *ABCD*

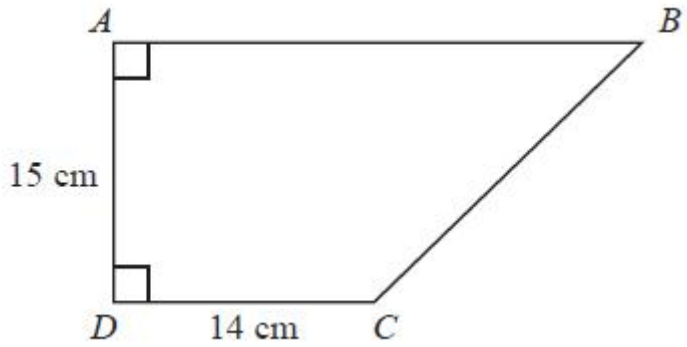


Diagram **NOT** accurately drawn

DAB and *ADC* are right angles.

AD = 15 cm *DC* = 14 cm

The area of the trapezium is 360 cm^2

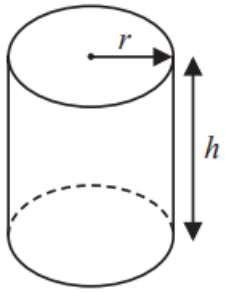
Work out the perimeter of the trapezium.

..... cm

(Total for question = 6 marks)

Q12. In this question, the following information may be useful

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



The diagram shows a solid cylinder with radius 3 m.

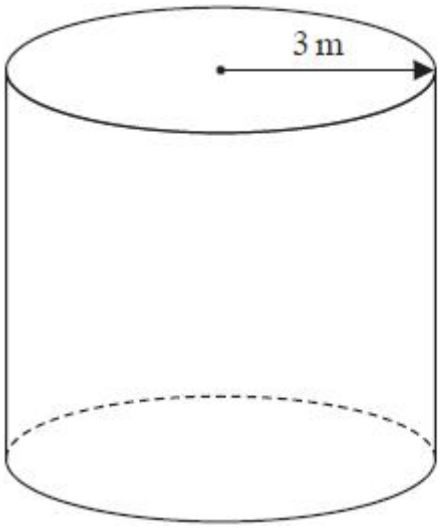


Diagram **NOT** accurately drawn

The volume of the cylinder is 72π m^3

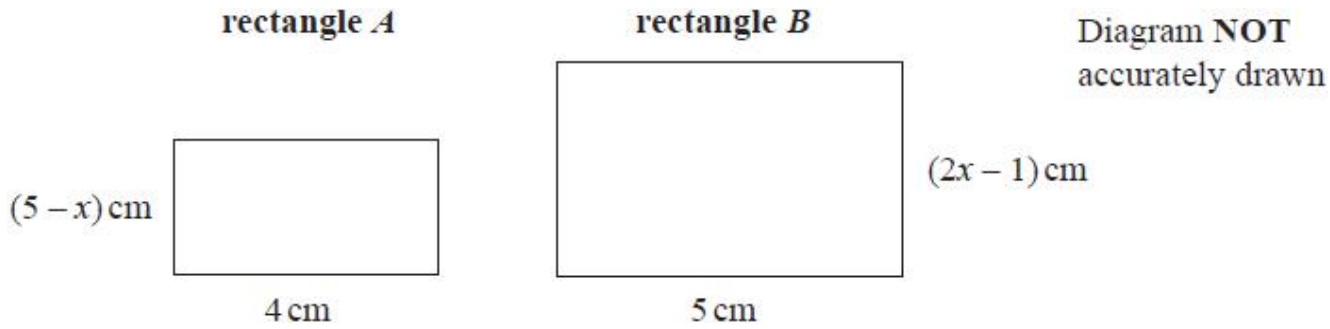
Calculate the **total** surface area of the cylinder.
Give your answer correct to 3 significant figures.

..... m^2

(Total for question = 5 marks)

Q13.

Here are two rectangles, rectangle *A* and rectangle *B*.



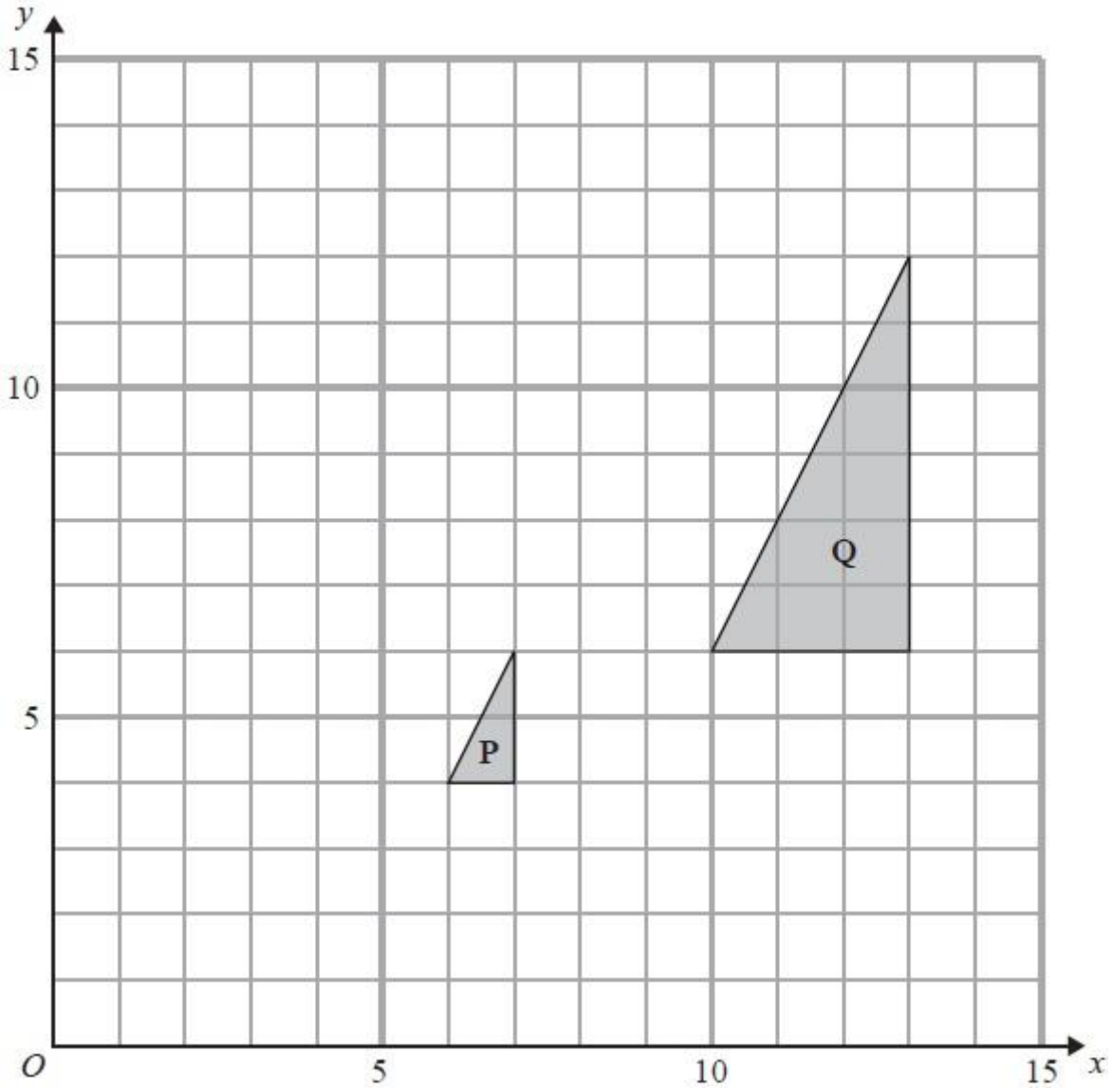
The area of rectangle *B* is twice the area of rectangle *A*.

Work out the value of *x*.
Show your working clearly.

x = ...

(Total for question = 4 marks)

Q14.



(a) Describe fully the single transformation which maps triangle **P** onto triangle **Q**.

..... **(3)**

(b) On the grid, translate triangle **Q** by the vector $\begin{pmatrix} -8 \\ 2 \end{pmatrix}$

Label the new triangle **R**.

(1)

(c) Describe fully the single transformation which maps triangle **R** onto triangle **P**.

.....

(2)

(Total for Question is 6 marks)

Q15.

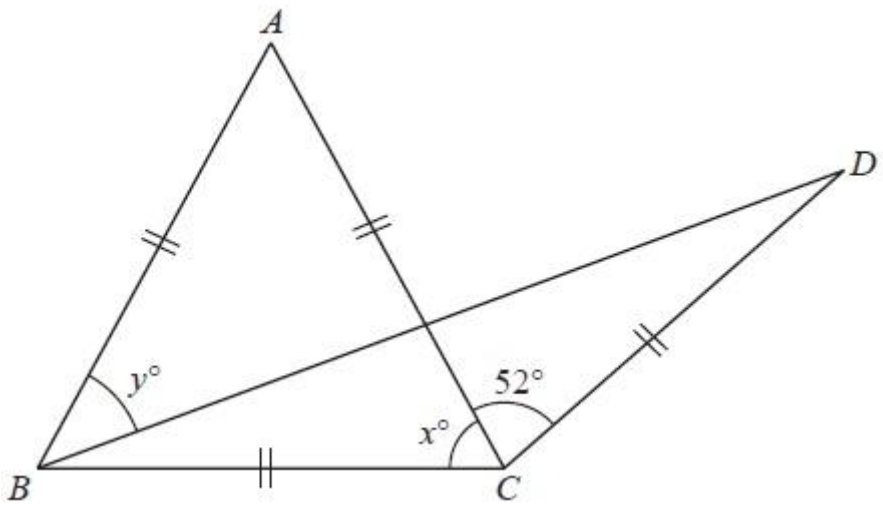


Diagram **NOT** accurately drawn

The diagram shows an equilateral triangle *ABC* and an isosceles triangle *BCD*.
AB = *AC* = *BC* = *CD*.
Angle *ACD* = 52°
Angle *ACB* = *x*°

(i) Find the value of *x*.

x = ...

Angle *ABD* = *y*°

(ii) Work out the value of *y*.

y = ...

(Total for Question is 4 marks)

Q16.

The diagram shows a rectangle and a circle.

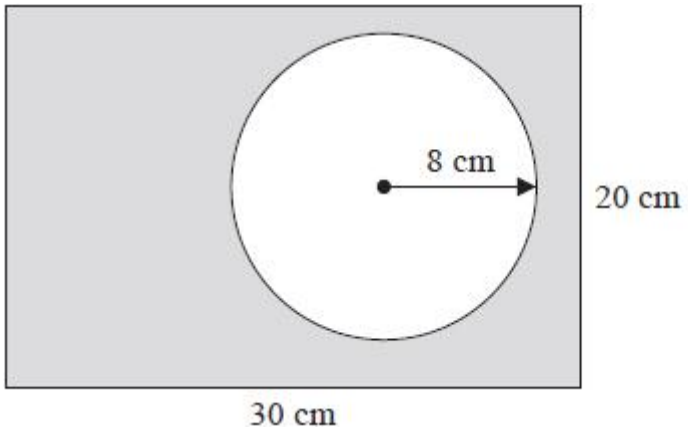


Diagram **NOT** accurately drawn

The rectangle has length 30 cm and width 20 cm.
The circle has radius 8 cm.

Work out the area of the shaded region.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for question = 4 marks)

Q17.

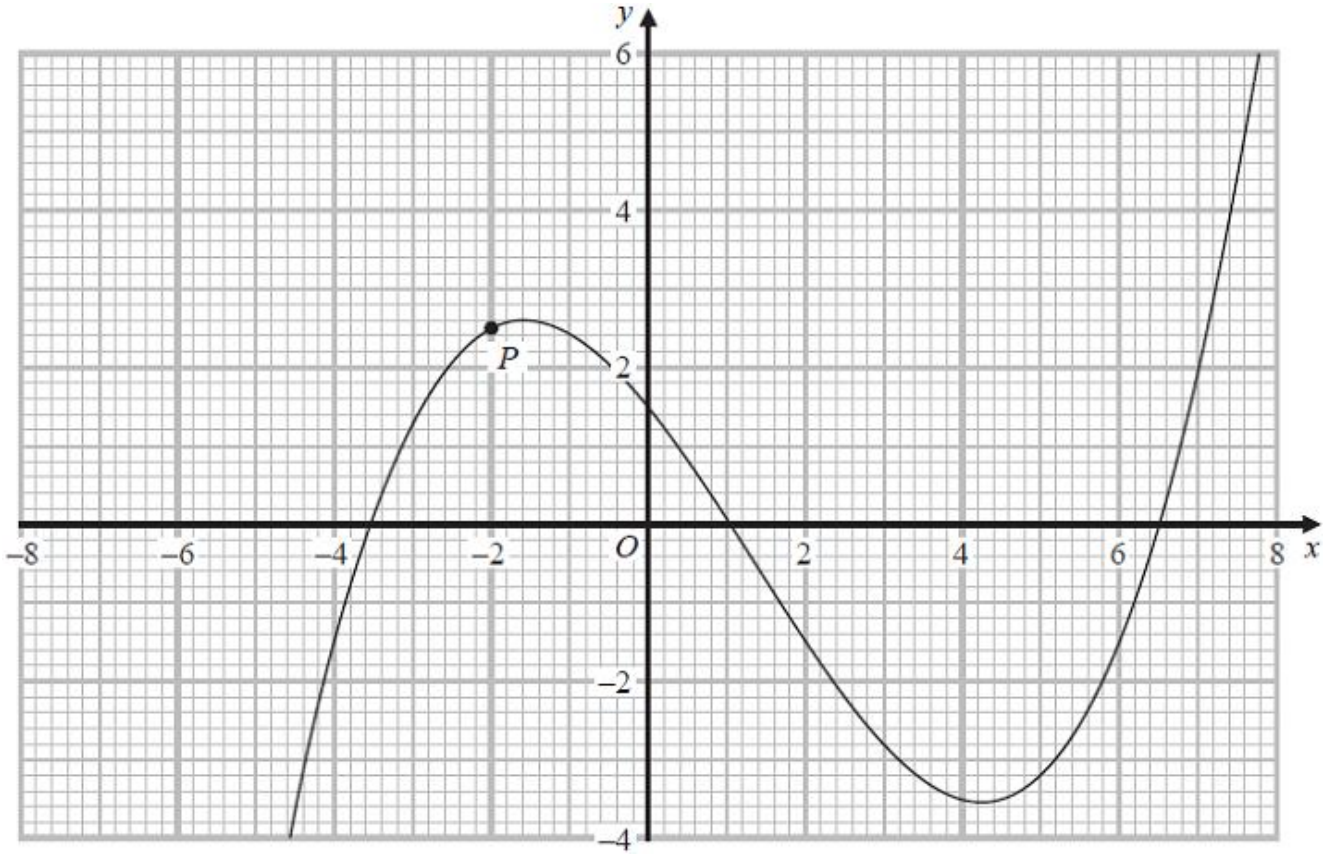
Express $\left(\frac{m^6k^{10}}{25}\right)^{\frac{3}{2}}$ in the form $\frac{m^ak^b}{c}$ where *a*, *b* and *c* are integers to be found.

.....

(Total for question = 2 marks)

Q18.

The diagram shows the graph of $y = f(x)$



The point P has x coordinate -2

Use the graph to find an estimate for the gradient of the curve at P

.....

(Total for question = 3 marks)

Q19. Factorise completely $(12x - y)^2 - (4x - 3y)^2$

.....

(Total for Question is 5 marks)

End of assessment