

**Cambridge IGCSE™**CANDIDATE  
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**CAMBRIDGE INTERNATIONAL MATHEMATICS****0607/33**

Paper 3 Calculator (Core)

**May/June 2025****1 hour 15 minutes**

You must answer on the question paper.

You will need: Geometrical instruments

**INSTRUCTIONS**

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should use a graphic display calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly. You will be given marks for correct methods, including sketches, even if your answer is incorrect.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For  $\pi$ , use either your calculator value or 3.142.

**INFORMATION**

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **12** pages.

## List of formulas

Area,  $A$ , of triangle, base  $b$ , height  $h$ .

$$A = \frac{1}{2}bh$$

Area,  $A$ , of circle of radius  $r$ .

$$A = \pi r^2$$

Circumference,  $C$ , of circle of radius  $r$ .

$$C = 2\pi r$$

Curved surface area,  $A$ , of cylinder of radius  $r$ , height  $h$ .

$$A = 2\pi rh$$

Curved surface area,  $A$ , of cone of radius  $r$ , sloping edge  $l$ .

$$A = \pi rl$$

Surface area,  $A$ , of sphere of radius  $r$ .

$$A = 4\pi r^2$$

Volume,  $V$ , of prism, cross-sectional area  $A$ , length  $l$ .

$$V = Al$$

Volume,  $V$ , of pyramid, base area  $A$ , height  $h$ .

$$V = \frac{1}{3}Ah$$

Volume,  $V$ , of cylinder of radius  $r$ , height  $h$ .

$$V = \pi r^2 h$$

Volume,  $V$ , of cone of radius  $r$ , height  $h$ .

$$V = \frac{1}{3}\pi r^2 h$$

Volume,  $V$ , of sphere of radius  $r$ .

$$V = \frac{4}{3}\pi r^3$$



- 1 (a) Write the number 15 036 in words.

..... [1]

- (b) Write down a factor of 36.

..... [1]

- 2 (a) Write  $\frac{7}{15}$  as a percentage.

Give your answer correct to 2 decimal places.

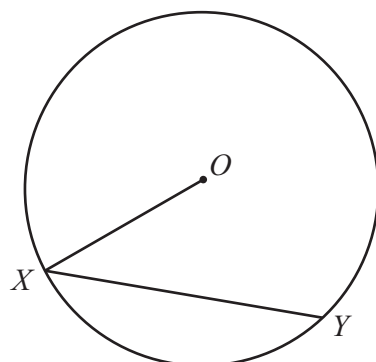
..... % [2]

- (b) Work out.

$$2\frac{5}{8} \div 1\frac{3}{4}$$

..... [1]

3



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$X$  and  $Y$  are points on a circle, centre  $O$ .

- (a) Complete each sentence with a mathematical term.

$OX$  is a ..... of the circle.

$XY$  is a ..... of the circle.

[2]

- (b) On the diagram, draw a tangent to the circle at  $Y$ .

[1]



- 4 These are the ingredients needed to make 8 biscuits.

|       |           |
|-------|-----------|
| 70 g  | butter    |
| 90 g  | sugar     |
| 1     | egg       |
| 140 g | flour     |
| 40 g  | chocolate |

- (a) An egg has a mass of 45 g.

Work out the total mass of the ingredients.

..... g [1]

- (b) Jasmine makes some of these biscuits.  
She uses 140 g of butter.

Work out how many of these biscuits she makes.

..... [1]

- (c) Viraj makes 10 of these biscuits.

Work out how many grams of chocolate he uses.

..... g [2]



- 5 A company uses this formula to work out the number of people who can safely work in an office.

$$N = \frac{L \times W}{15}$$

$L$  is the length of the office in metres.

$W$  is the width of the office in metres.

$N$  is the number of people.

- (a) An office has length 18 m and width 10 m.

Work out the number of people who can safely work in this office.

..... [1]

- (b) 60 people can safely work in an office with width 22.5 m.

Work out the length of this office.

..... m [2]

- 6 A shirt costs \$45.  
The cost of the shirt is increased by 7%.

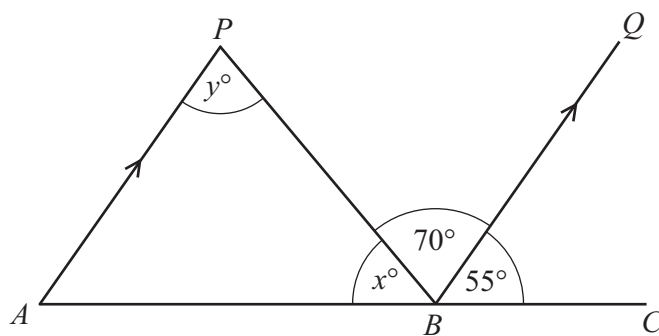
- (a) Work out the increase in the cost of the shirt.

\$ ..... [1]

- (b) Work out the new cost of the shirt.

\$ ..... [1]





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In the diagram,  $ABC$  is a straight line.  
 $AP$  is parallel to  $BQ$ .  
 Angle  $PBQ = 70^\circ$  and angle  $QBC = 55^\circ$ .

(a) Work out the value of  $x$ .

$x = \dots\dots\dots$  [1]

(b) Write down the value of  $y$ .

$y = \dots\dots\dots$  [1]

(c) Show that triangle  $APB$  is isosceles.

[2]



8 Work out.

(a)  $17^3$

..... [1]

(b)  $\frac{4^2}{2^4}$

..... [1]

(c)  $8^0$

..... [1]

(d)  $(4.5 \times 10^7) \times (2.4 \times 10^{-3})$   
Give your answer in standard form.

..... [2]

9 (a) Solve.

$$\frac{x}{2} - 1 = 5$$

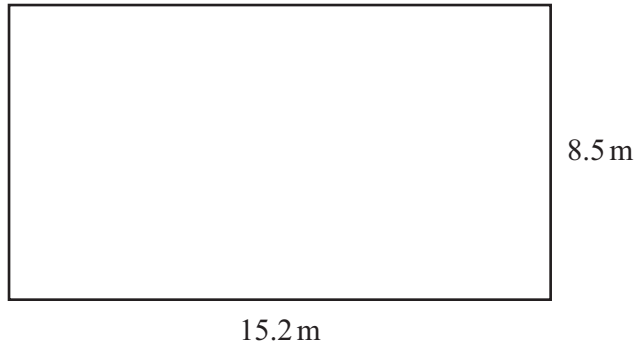
$x =$  ..... [2]

(b) Solve.

$$3(2x + 7) = 6$$

$x =$  ..... [3]





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Geeta's garden is a rectangle 15.2 m long and 8.5 m wide.  
She puts 50 g of grass seed on each square metre of the garden.

Work out the mass of grass seed she uses.  
Give your answer in kilograms.

..... kg [4]





- 11 A 6-sided die, numbered 1 to 6, is thrown 400 times.  
The table shows the results.

|               |     |    |    |    |     |    |
|---------------|-----|----|----|----|-----|----|
| Number on die | 1   | 2  | 3  | 4  | 5   | 6  |
| Frequency     | 100 | 20 | 80 | 70 | 110 | 20 |

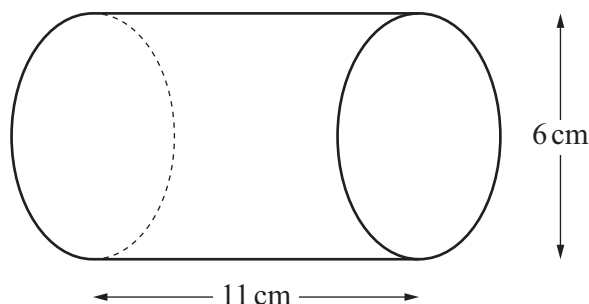
- (a) Give reasons why this is a biased die.

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

- (b) Find the probability of throwing a 4 with this die.

..... [1]

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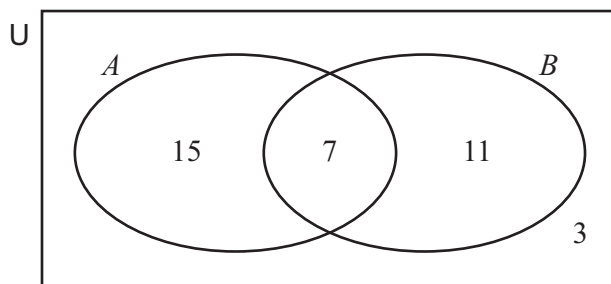
This cylinder has diameter 6 cm and length 11 cm.

Work out the volume of the cylinder.  
Give the units of your answer.

..... [3]



13



The Venn diagram shows the number of elements in each region.

(a) Find  $n(A')$ .

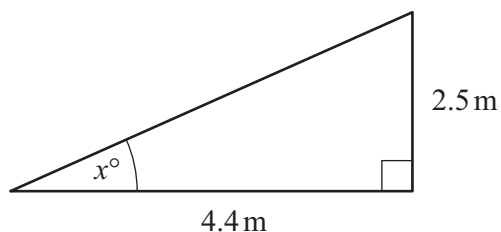
..... [1]

(b) An element is chosen at random from  $U$ .

Find the probability that this element is in  $A \cap B$ .

..... [2]

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Use trigonometry to find the value of  $x$ .

$x =$  ..... [2]



15

| Score ( $x$ )    | Mid-value | Frequency |
|------------------|-----------|-----------|
| $0 < x \leq 10$  | 5         | 24        |
| $10 < x \leq 20$ |           | 81        |
| $20 < x \leq 30$ |           | 195       |

Complete the table and work out an estimate of the mean score.

..... [2]

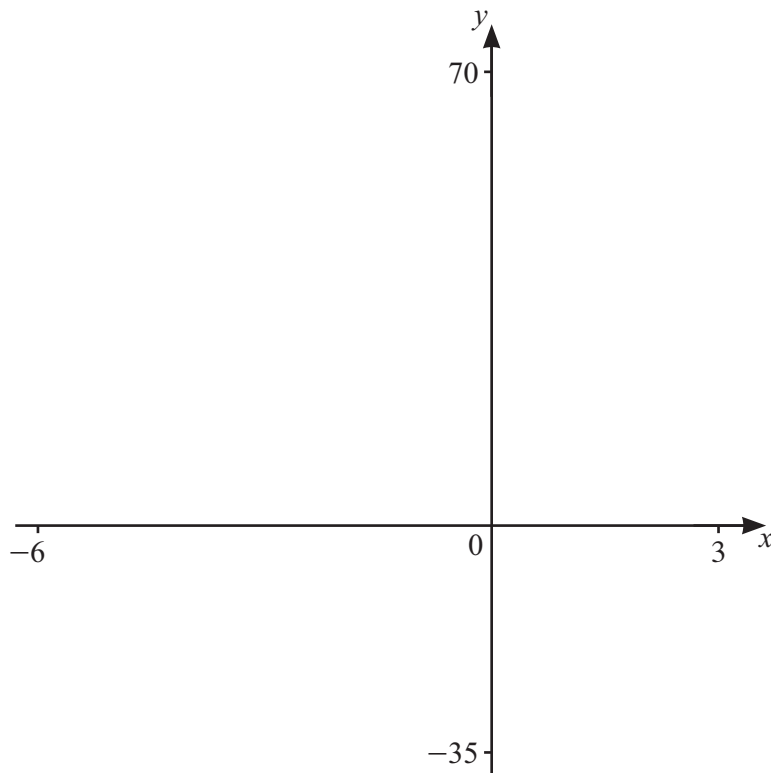
- 16 Mike invests \$2500 in an account paying simple interest at a rate of  $R\%$  per year. At the end of 5 years, the value of his investment is \$2800.

Work out the value of  $R$ .

$R =$  ..... [4]

Question 17 is printed on the next page.





- (a) (i) On the diagram, sketch the graph of  $y = x^3 + 6x^2 + 2x - 20$  for values of  $x$  between  $-6$  and  $3$ . [2]
- (ii) Find the  $x$ -coordinate of the local maximum.  $x = \dots\dots\dots$  [1]
- (b) On the diagram, sketch the graph of  $y = 3x + 10$  for values of  $x$  between  $-6$  and  $3$ . [2]
- (c) Find the coordinates of each point of intersection of  $y = x^3 + 6x^2 + 2x - 20$  and  $y = 3x + 10$ .  
 (..... , ..... ) and (..... , ..... ) and (..... , ..... ) [3]

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