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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 π , 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.

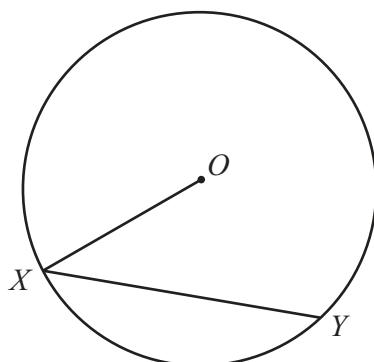
..... % [2]

- (b) Work out.

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

..... [1]

3



NOT TO
SCALE

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

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- DO NOT WRITE IN THIS MARGIN

DO NOT WRITE IN THIS MARGIN

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- Work out how many of these biscuits she makes.

..... [1]

- 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%.

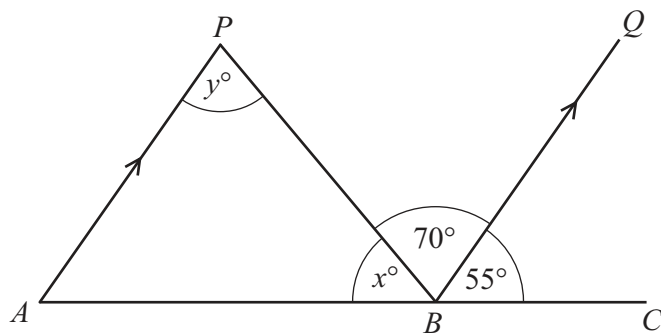
- (a) Work out the increase in the cost of the shirt.

\$ [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.

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

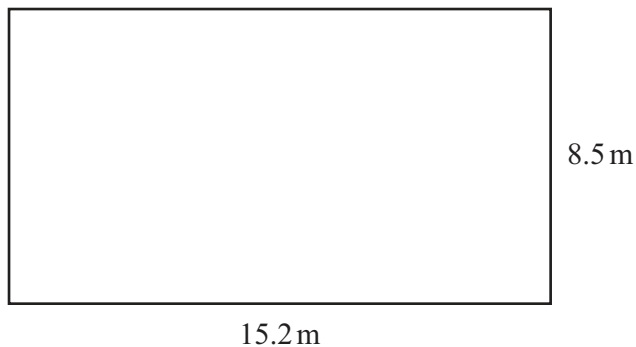
$x =$ [2]

(b) Solve.

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

$x =$ [3]





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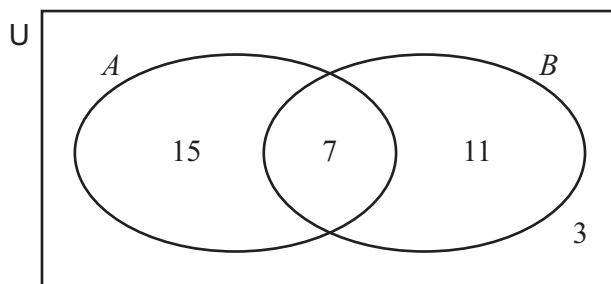
Geeta's garden is a rectangle 15.2 m long and 8.5 m wide.
She puts 50 g of grass seed on each square metre of the garden.

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

..... kg [4]



13



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

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

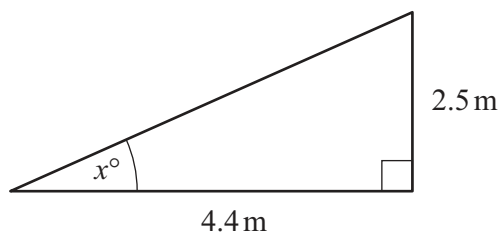
..... [1]

(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]

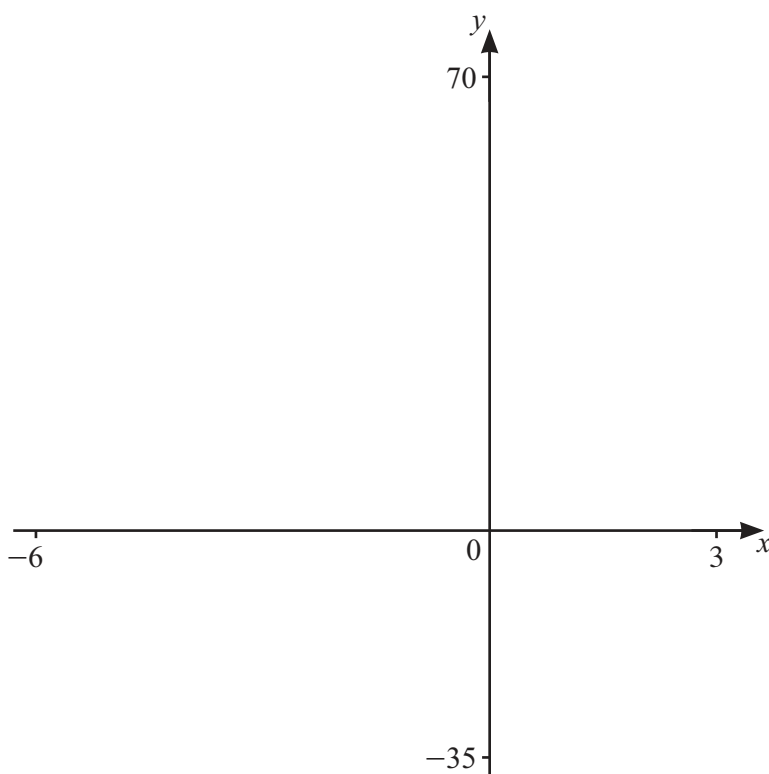
- 16** Mike invests \$2500 in an account paying simple interest at a rate of $R\%$ per year. At the end of 5 years, the value of his investment is \$2800.

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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