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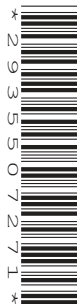


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CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/33

Paper 3 (Core)

October/November 2024

1 hour 45 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 and 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 your calculator value.

INFORMATION

- The total mark for this paper is 96.
- The number of marks for each question or part question is shown in brackets [].

This document has **16** pages.

**Formula List**

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

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

Area, A , of circle, radius r .

$$A = \pi r^2$$

Circumference, C , of circle, 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 .

$$A = \pi rl$$

Curved 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 .

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

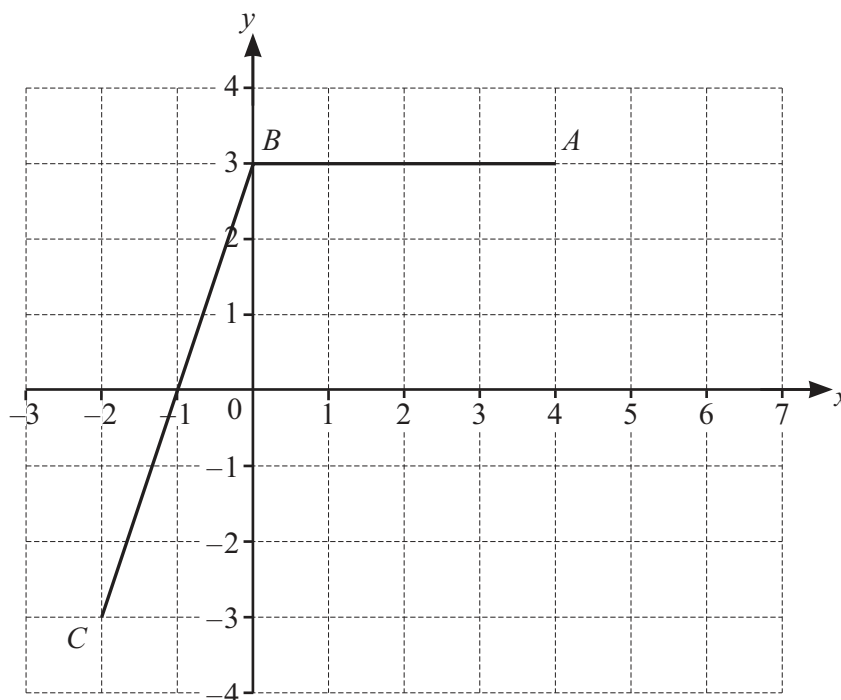
Volume, V , of sphere of radius r .

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





1 The points A , B and C are plotted on a one centimetre square grid.



- [2]



DO NOT WRITE IN THIS MARGIN

Day of the week	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Number of newspapers sold	135	105	170	130	120	150	205

- DO NOT WRITE IN THIS MARGIN

..... [1]

- DO NOT WRITE IN THIS MARGIN

..... [1]

- DO NOT WRITE IN THIS MARGIN

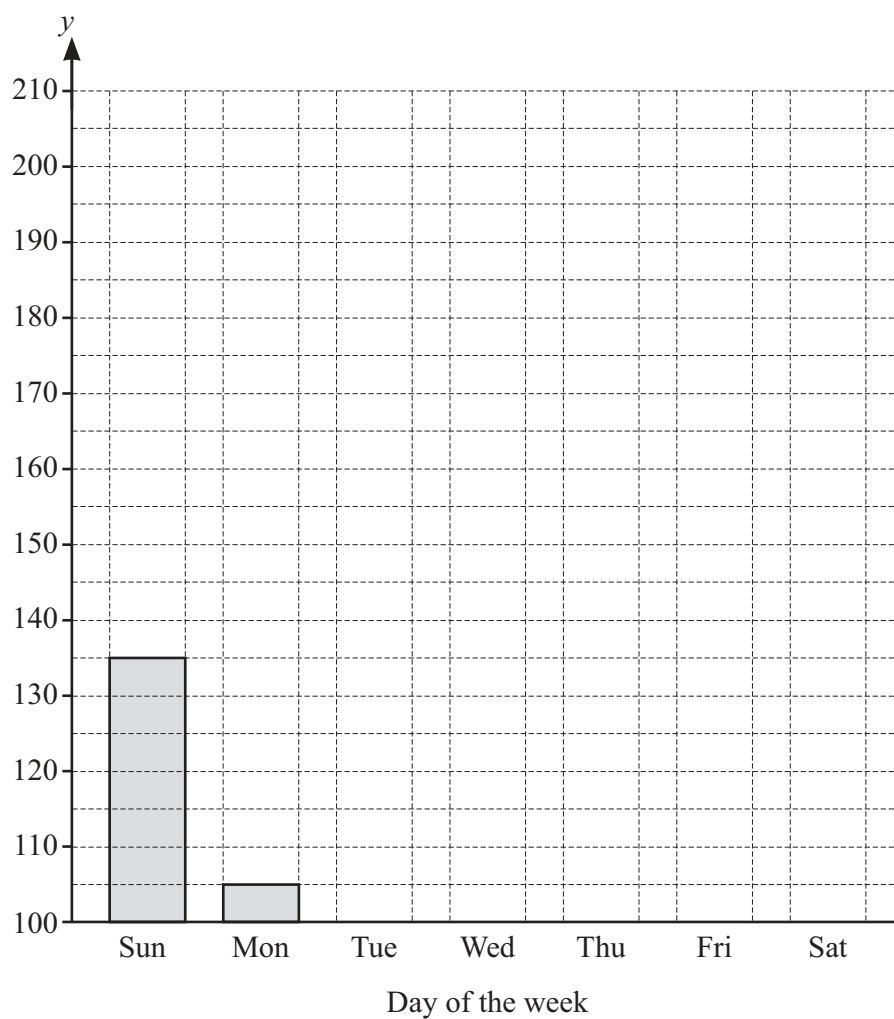
..... [1]

- DO NOT WRITE IN THIS MARGIN

..... [2]



9

Number of
newspapers
sold

[2]





- 3 (a)** Work out 2.87^2 .
Give your answer correct to 2 decimal places.

..... [2]

(b) Work out.

$$\frac{29.7}{6.1 + 3.8}$$

..... [1]

(c) Work out $\sqrt[3]{64}$.

..... [1]

(d) Work out 5800×250 .
Give your answer in standard form.

..... [2]





7

- 4 (a) Petrol costs \$2.47 for each litre.
Dev buys a whole number of litres of petrol.

Work out the greatest number of litres he can buy with \$50 and how much change he gets.

..... litres with \$ change [3]

- (b)** At the petrol station, it takes 3 seconds to pump each litre of petrol into a car.

Work out how long it would take to pump 28 litres of petrol into a car. Give your answer in minutes and seconds.

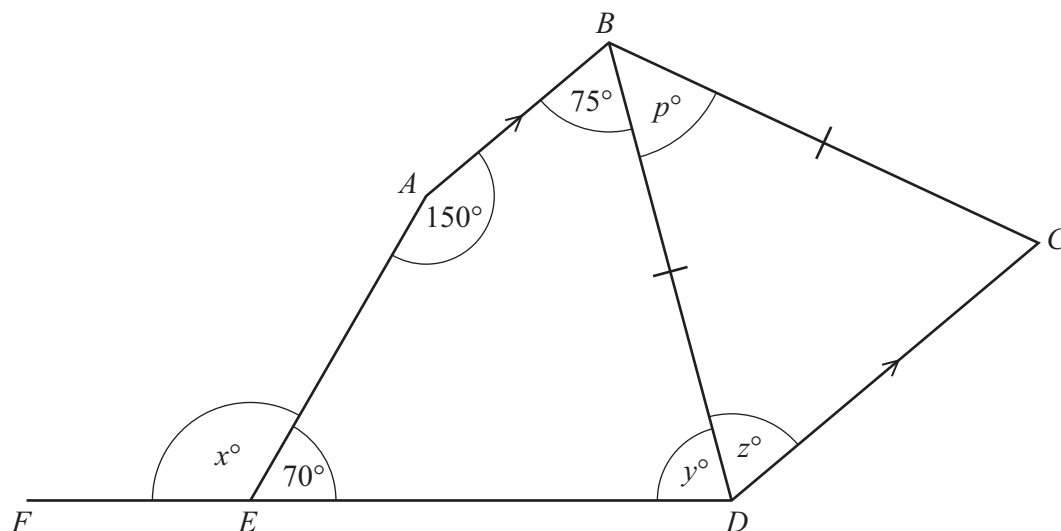
..... minutes seconds [2]

- (c) Dev drives at an average speed of 20 km/h for 30 minutes and then at an average speed of 58 km/h for 2 hours.

Calculate the average speed for the whole journey.

..... km/h [4]





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In the diagram, FED is a straight line.
 AB is parallel to DC and $BD = BC$.

- (a) Find the value of x , the value of y and the value of z .
Give a geometric reason for each answer.

$x = \dots\dots\dots$ because $\dots\dots\dots$

$\dots\dots\dots$

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

$\dots\dots\dots$

$z = \dots\dots\dots$ because $\dots\dots\dots$

$\dots\dots\dots$

[6]

- (b) Find the value of p .

$p = \dots\dots\dots$ [2]




$$5x + 10$$

..... [1]

$$x(x^2 - 3x)$$

..... [2]

A rectangle is shown with its horizontal sides labeled $x+3$ and its vertical sides labeled x .

NOT TO
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(i) Find an expression, in terms of x , for the perimeter of this rectangle. Give your answer in its simplest form.

..... [2]

(ii) The perimeter of this rectangle is 36 cm.

Write down an equation in terms of x and solve it to find the longest side of the rectangle.

..... cm [4]



7 This formula can be used to convert between a temperature in °C, and a temperature in °F.

$F = 1.8C + 32$

(a) Use the formula to convert 15 °C to °F.

..... °F [2]

(b) Use the formula to convert 86 °F to °C.

..... °C [2]

(c) Rearrange $F = 1.8C + 32$ to make C the subject.

$C =$ [2]

8 Sam has a biased six-sided die.
The table shows the probability of the die landing on each of the numbers 2 to 6.

Number	1	2	3	4	5	6
Probability		0.16	0.18	0.18	0.16	0.11

(a) Work out the probability that the die will land on 1.

..... [2]

(b) Sam throws the die once.

Work out the probability that the die lands on 5 or 6.

..... [1]



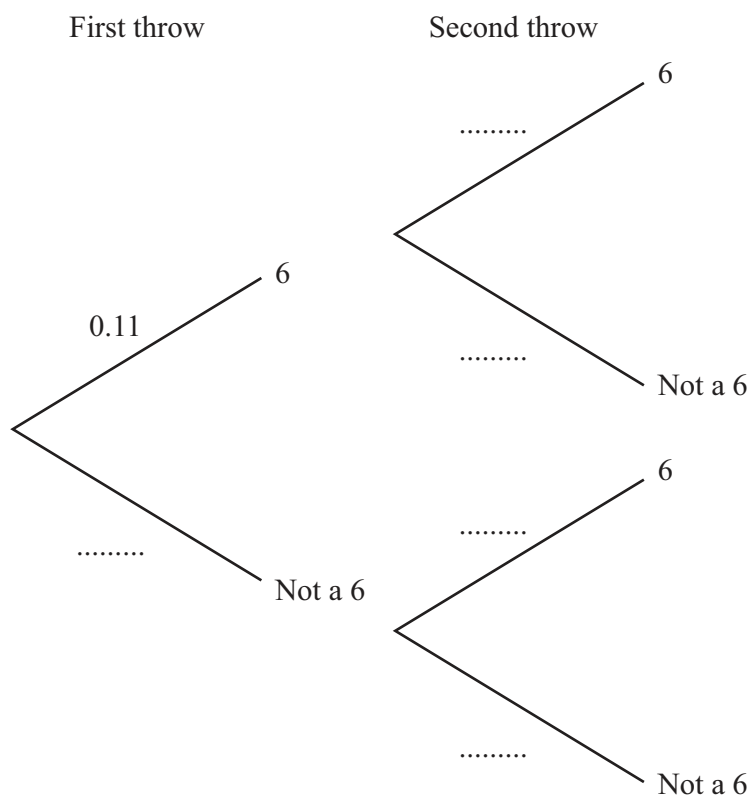
(c) Sam throws the die 50 times.

Calculate an estimate of the number of times the die will land on 2.

..... [1]

(d) Sam throws the die twice.

(i) Complete the tree diagram.



[2]

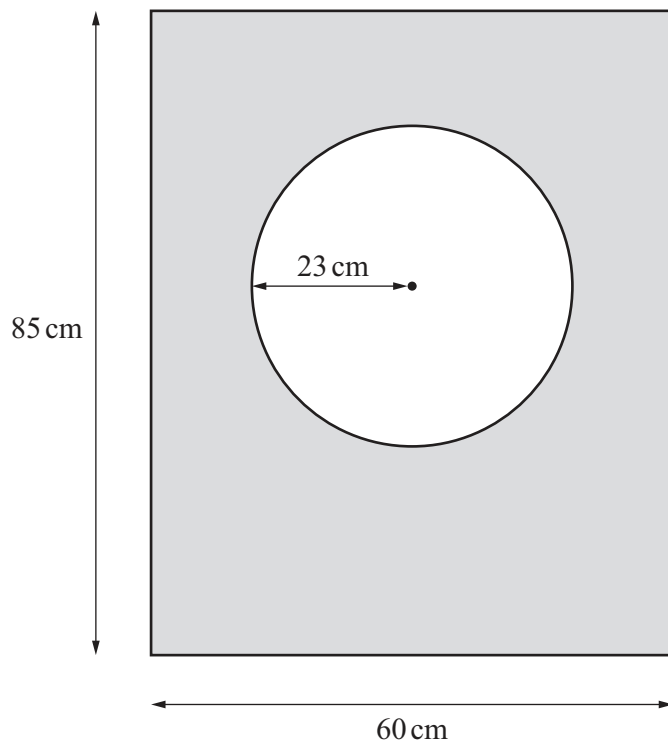
(ii) Find the probability that Sam does not throw a 6 on either throw.

..... [2]





9 (a)



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The diagram shows the front of a washing machine.
The front is a rectangle and the door is a circle.

Work out the shaded area.

..... cm^2 [3]





13



(b) In a sale, the price of a washing machine is reduced from \$1250 to \$1175.

(i) Work out the percentage reduction.

..... % [3]

(ii) 3 years ago Tony invested \$1000 at a rate of 8% per year simple interest.

Is the value of his investment enough to buy the washing machine in the sale?
Show how you decide.

[4]





10 Kiara and Prisha are sisters.

At New Year 2023, Kiara was 10 years old and Prisha was 14 years old.

- (a)** At New Year 2023, their grandfather gives money to Kiara and Prisha.
The money is divided in the ratio of their ages.
Kiara receives \$250.

Work out the total amount the grandfather gives the sisters.

\$ [3]

- (b)** At New Year 2023, Kiara and Prisha's aunt gives them \$180 also to be divided in the ratio of their ages.

Work out how much of the \$180 each sister gets.

Kiara \$

Prisha \$ [2]

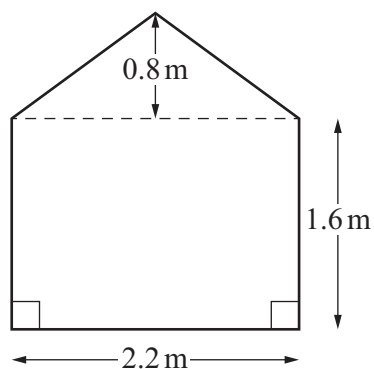
- (c)** Work out the ratio Kiara's age : Prisha's age at New Year 2029.
Give your answer in its simplest form.

..... : [2]





11

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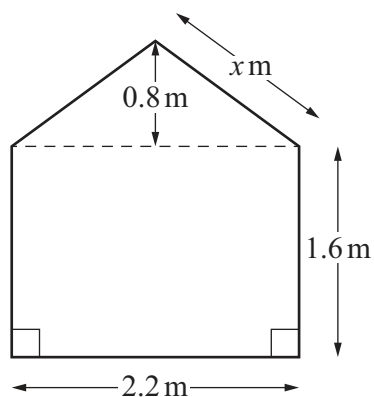
The diagram shows the cross-section of a garden shed.
The diagram has one line of symmetry.

- (a) The shed is a prism with length 1.5 m.

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

..... [5]

(b)

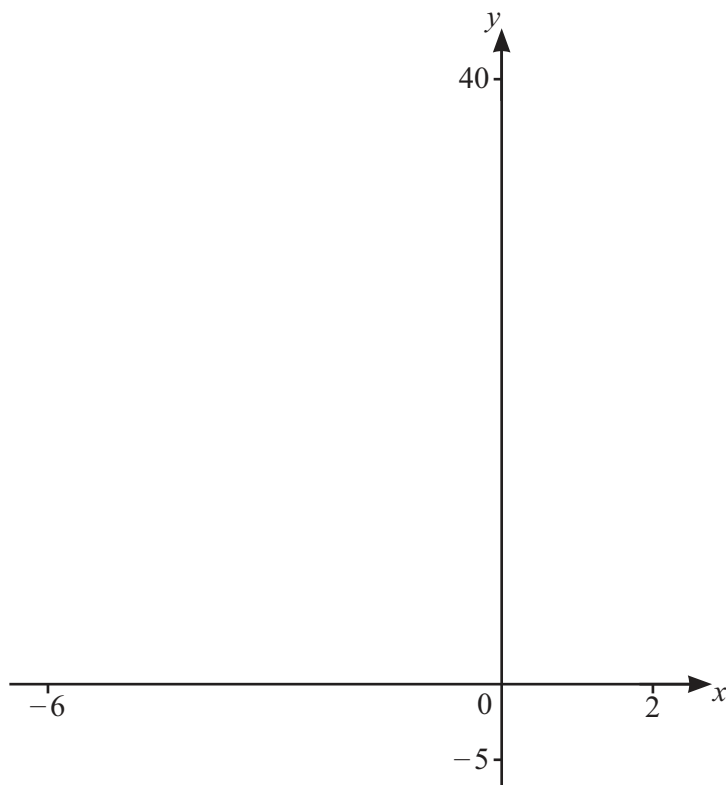
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Use Pythagoras' Theorem to work out the value of x .

$x =$ [3]

Question 12 is printed on the next page.





(a) (i) On the diagram, sketch the graph of $y = x^3 + 6x^2$ for $-6 \leq x \leq 2$. [2]

(ii) Find the coordinates of the local minimum.

(..... ,) [1]

(iii) Find the coordinates of the local maximum.

(..... ,) [1]

(b) On the diagram, sketch the graph of $y = 10 - 3x$ for $-6 \leq x \leq 2$. [2]

(c) Find the x -coordinate of each point of intersection of $y = x^3 + 6x^2$ and $y = 10 - 3x$.

$x = \dots\dots\dots$ and $x = \dots\dots\dots$ and $x = \dots\dots\dots$ [3]

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