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CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/22

Paper 2 Non-calculator (Extended)

May/June 2025

1 hour 30 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.
- Calculators must **not** be used in this paper.
- You may use tracing paper.
- You must show all necessary working clearly. You will be given marks for correct methods even if your answer is incorrect.

INFORMATION

- The total mark for this paper is 75.
- 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 .

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

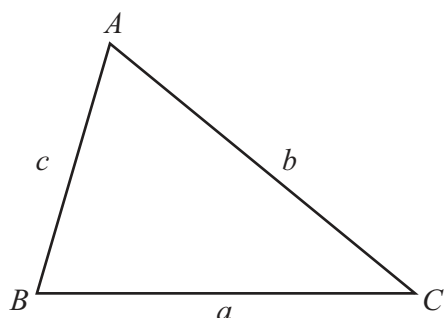
Volume, V , of sphere of radius r .

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

For the equation $ax^2 + bx + c = 0$, where $a \neq 0$,

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

For the triangle shown,



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

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

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

Calculators must **not** be used in this paper.

- 1 (a) Work out $(0.02)^3$.

..... [1]

- (b) Write your answer to **part (a)** in standard form.

..... [1]

- 2 This is a list of numbers.

31 33 35 37 39 41

From this list, write down all the prime numbers.

..... [2]

- 3 Write the fraction $\frac{24}{64}$ in its lowest terms.

..... [1]

- 4 Convert 250 cm^3 into m^3 .

..... m^3 [1]

- 5 A quadrilateral has exactly one pair of parallel sides.

Write down the mathematical name of this quadrilateral.

..... [1]





4



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DO NOT WRITE IN THIS MARGIN

Colour	Red	Blue	White	Silver	Black
Frequency	7	x	15	16	x

$x = \dots\dots\dots [2]$

..... [1]



8 (a) Expand and simplify.

$$5(2x - 1) - 3(3 + 4x)$$

..... [2]

(b) Factorise.

(i) $3y - y^2$

..... [1]

(ii) $8ax - 3by + 2ay - 12bx$

..... [2]

(iii) $3x^2 + 5x - 12$

..... [2]





9 The table shows the marks scored by each of 60 students in a science test.

Mark	0	1	2	3	4	5	6	7	8	9	10
Frequency	2	14	5	3	7	6	5	1	7	2	8

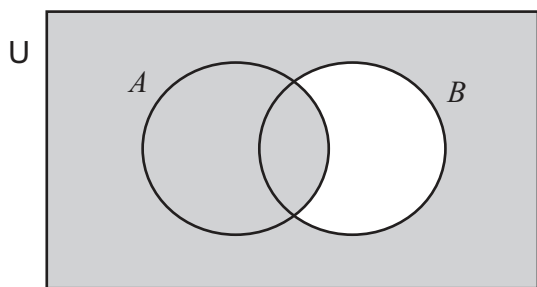
(a) Write down the mode.

..... [1]

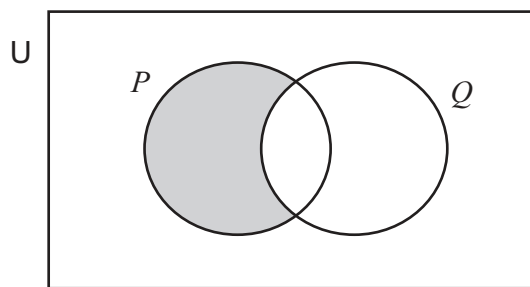
(b) Find the interquartile range.

..... [2]

10 Use set notation to describe each of the shaded regions.



.....



..... [2]

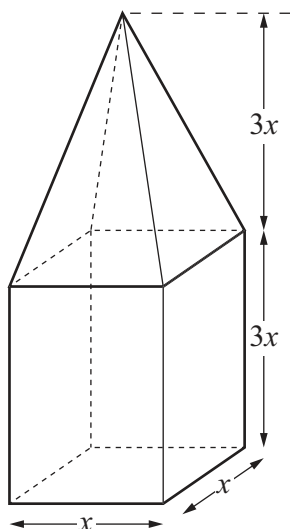
11 Simplify.

$$(5x)^3 \div \left(\frac{1}{x}\right)^4$$

..... [2]



12 In this question all lengths are in centimetres.



NOT TO
SCALE

A solid is made by joining a cuboid to a pyramid.
The base of the cuboid is a square of side x .
The height of the cuboid is $3x$.

The base of the pyramid is a square of side x .
The height of the pyramid is $3x$.

The total volume of the solid is $32\,000\text{ cm}^3$.

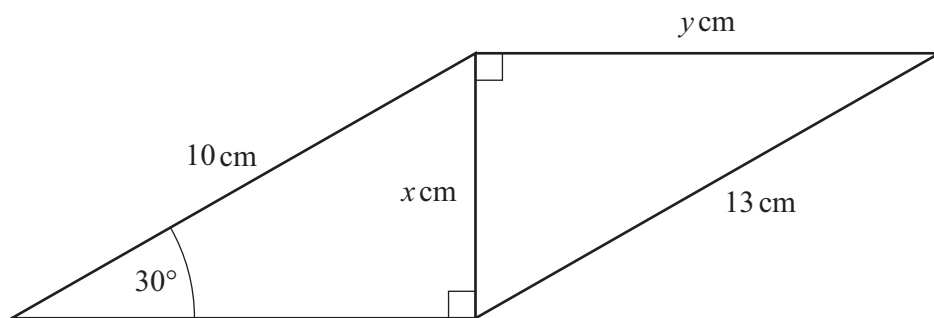
Show that $x = 20$.

[3]





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NOT TO
SCALE

- (a) Show that $x = 5$.

[2]

- (b) Find the value of y .

$y = \dots\dots\dots$ [3]

- 14 Find the lowest common multiple (LCM) of these expressions.

$$2x^3y^4 \quad 3x^2z^3 \quad 4y^2z$$

$\dots\dots\dots$ [2]



- 15 An unbiased die is numbered 2, 3, 4, 4, 5, 6.
Zaira rolls the die three times.

Find the probability that Zaira rolls an odd number two or more times.

..... [4]

- 16 Find the next term and the n th term in each sequence.

(a) 12, 14, 16, 18, 20,

next term =

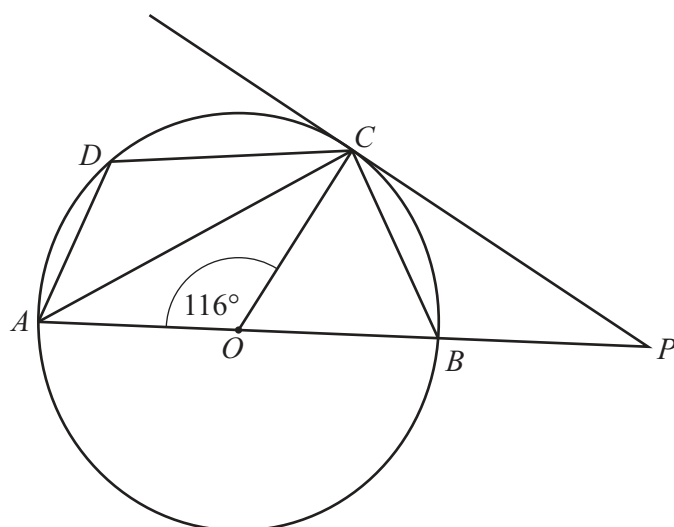
n th term = [3]

(b) 81, 27, 9, 3, 1,

next term =

n th term = [3]





NOT TO
SCALE

The diagram shows a circle, centre O .
 $AOBP$ is a straight line.
 PC is a tangent to the circle.
 Angle $AOC = 116^\circ$.

Find

(a) angle OAC

Angle $OAC = \dots\dots\dots$ [1]

(b) angle ABC

Angle $ABC = \dots\dots\dots$ [1]

(c) angle ADC

Angle $ADC = \dots\dots\dots$ [1]

(d) angle APC .

Angle $APC = \dots\dots\dots$ [2]

- 18 Apples cost \$2.50 per kilogram.
 The total cost of x kg of apples and y kg of pears is \$10 .

Find the cost of 1 kg of pears.
 Give your answer in terms of x and y .

\$ \dots\dots\dots\$ [3]





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$$f(x) = \frac{1}{5x-4}, \quad x \neq 0.8$$

(a) Find $f(2)$.

..... [1]

(b) Solve $f(x) = \frac{1}{11}$.

..... [2]

(c) Find $f^{-1}(x)$. $f^{-1}(x) =$ [3]

20 (a) Rationalise the denominator.

$$\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$$

..... [3]

(b) Expand and simplify.

$$(\sqrt{x+1}-\sqrt{x})(\sqrt{x+1}+\sqrt{x})$$

..... [2]

Question 21 is printed on the next page.





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- 21 Line L is perpendicular to the line with equation $y = 2x + 1$.
Line L passes through the point $(3, 12)$.

(a) Find the equation of the line L .

[3]

- (b) The shortest distance from the point $(3, 12)$ to the line $y = 2x + 1$ is $\sqrt{k}$.

Find the value of k .

$k = \dots\dots\dots$ [5]

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