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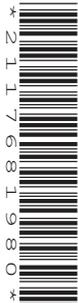
Cambridge IGCSE™

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

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 [ ].

List of formulas

Area, A, of triangle, base b, height h. $\qquad A = \frac{1}{2}bh$

Area, A, of circle of radius r. $\qquad A = \pi r^2$

Circumference, C, of circle of radius r. $\qquad C = 2\pi r$

Curved surface area, A, of cylinder of radius r, height h. $\qquad A = 2\pi rh$

Curved surface area, A, of cone of radius r, sloping edge l. $\qquad A = \pi rl$

Surface area, A, of sphere of radius r. $\qquad A = 4\pi r^2$

Volume, V, of prism, cross-sectional area A, length l. $\qquad V = Al$

Volume, V, of pyramid, base area A, height h. $\qquad V = \frac{1}{3}Ah$

Volume, V, of cylinder of radius r, height h. $\qquad V = \pi r^2 h$

Volume, V, of cone of radius r, height h. $\qquad V = \frac{1}{3}\pi r^2 h$

Volume, V, of sphere of radius r. $\qquad V = \frac{4}{3}\pi r^3$

For the equation $\qquad ax^2 + bx + c = 0$, where $a \neq 0$, $\qquad x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

For the triangle shown,
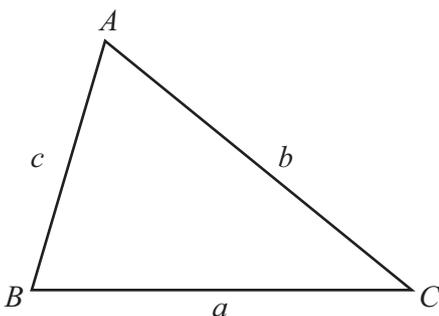
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

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

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3

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.

$$31 \quad 33 \quad 35 \quad 37 \quad 39 \quad 41$$

From this list, write down all the prime numbers.

.... [2]

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

.... [1]

4 Convert $250 \, \text{cm}^3$ 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]

DO NOT WRITE IN THIS MARGIN

6 **(a)** Share 120 in the ratio 2 : 3.

.... , ... [2]

(b) Share Z in the ratio $x : y$.

.... , ... [2]

7 At a school, 50 students are asked their favourite car colour.
The table shows the results.

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

(a) Find the value of x.

$x =$ .... [2]

(b) Find the relative frequency of red.

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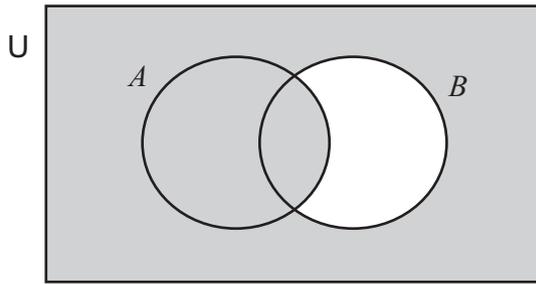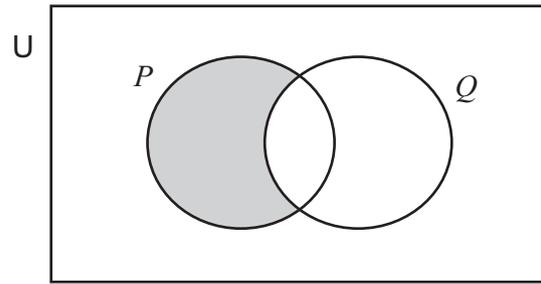
.... [2]

11 Simplify.

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

.... [2]

12 In this question all lengths are in centimetres.
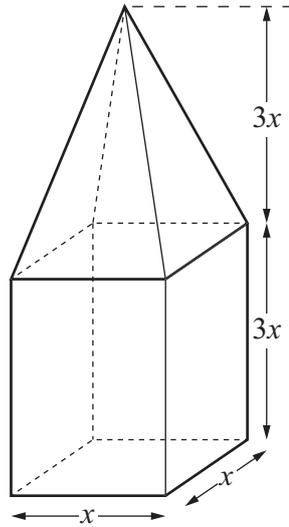
NOT TO
SCALE

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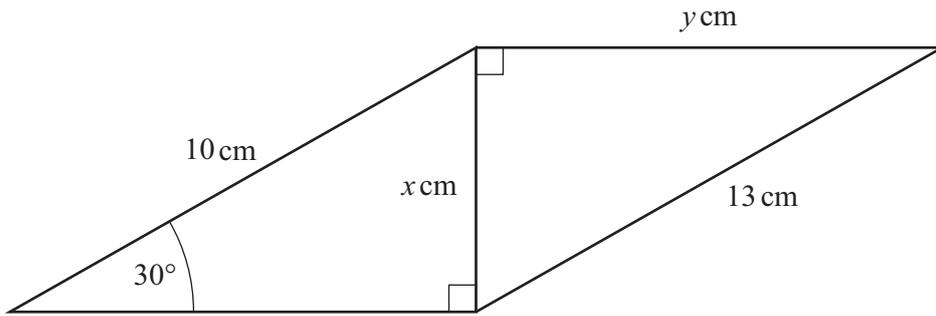The height of the cuboid is $3x$.

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]

13

NOT TO SCALE

(a) Show that $x = 5$.

[2]

(b) Find the value of y.

$y =$ .... [3]

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

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

.... [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 nth term in each sequence.

(a) 12,　　14,　　16,　　18,　　20,　　....

next term = ...

nth term = ... [3]

(b) 81,　　27,　　9,　　3,　　1,　　....

next term = ...

nth term = ... [3]

17
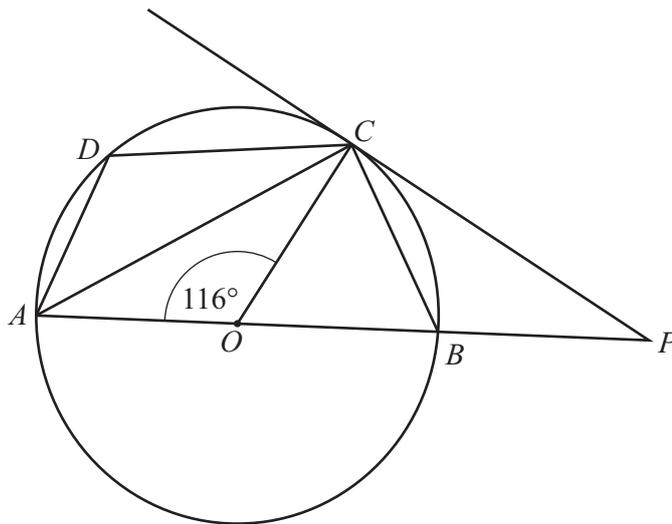
NOT TO
SCALE

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

Find

(a) angle OAC

Angle $OAC =$ .... [1]

(b) angle ABC

Angle $ABC =$ .... [1]

(c) angle ADC

Angle $ADC =$ .... [1]

(d) angle APC.

Angle $APC =$ .... [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.

\$ .... [3]

19 $f(x) = \dfrac{1}{5x-4}$, $x \neq 0.8$

(a) Find $f(2)$.

.... [1]

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

.... [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.

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

.... [2]

Question 21 is printed on the next page.

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.

$k =$ .... [5]