Cambridge Assessment International Education

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CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

Paper 2 (Extended) **October/November 2023**

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.
- Calculators must **not** be used in this paper.
- You may use tracing paper.
- You must show all necessary working clearly and you will be given marks for correct methods even if your answer is incorrect.
- All answers should be given in their simplest form.

INFORMATION

- The total mark for this paper is 40.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **8** pages.

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Formula List

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

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

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

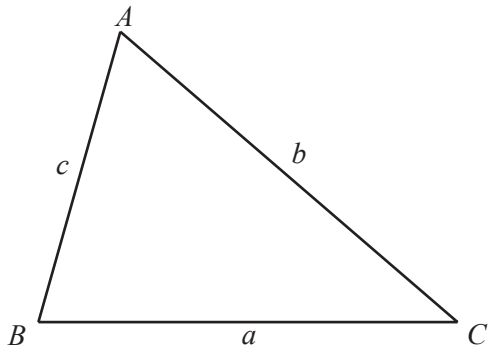
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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

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

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

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



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

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

$$\text{Area} = \frac{1}{2}bc\sin A$$

Answer **all** the questions.

1 Write 0.0301497

(a) correct to 3 decimal places

..... [1]

(b) correct to 4 significant figures.

..... [1]

2 Write down the number of lines of symmetry of a kite.

..... [1]

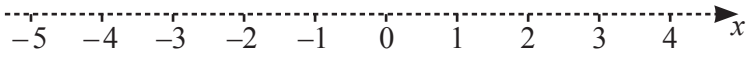
3 Work out $\frac{5}{6} - \frac{5}{8}$.

..... [2]

4 **(a)** Solve $11 + 2x > 5$.

..... [2]

(b) Show your solution to **part (a)** on this number line.



[1]

5 One day Hassan surveys the number of people in the cars passing his house.
The results for the first 100 cars are shown in the table.

Number of people	1	2	3	4	5	6
Frequency	42	23	17	9	7	2
Relative frequency						

(a) Complete the table. [2]

(b) A total of 1200 cars pass Hassan's house that day.

Calculate an estimate of the number of these cars with 5 people.

..... [1]

6 The angles of a triangle are in the ratio $2 : 3 : 7$.

Find each angle.

..... , ... , ... [3]

7 $p = 5 \times 10^7$

Work out p^3.
Give your answer in standard form.

..... [2]

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8 For this sequence

1 6 11 16 21 …

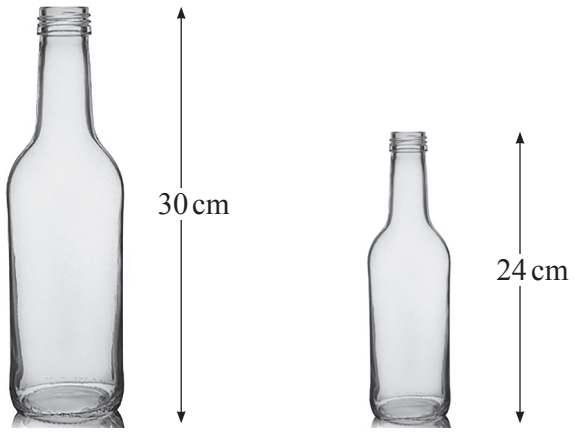
(a) find the next term

..... [1]

(b) find an expression for the nth term.

..... [2]

9



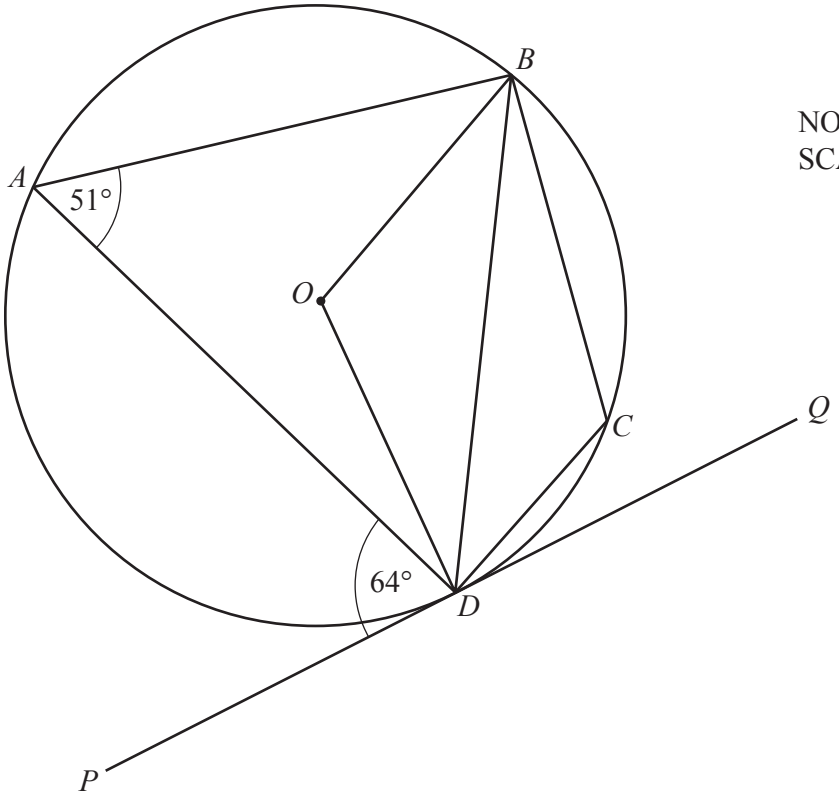
NOT TO SCALE

The two bottles are mathematically similar.
The height of the large bottle is 30 cm.
The height of the small bottle is 24 cm.
The volume of the large bottle is 250 cm^3.

Calculate the volume of the small bottle.

..... cm^3 [3]

10



NOT TO SCALE

A, B, C and D are points on the circle centre O.
PDQ is a tangent to the circle at D.
Angle $BAD = 51°$ and angle $PDA = 64°$.

Find

(a) angle BCD

Angle $BCD =$ ..... [1]

(b) angle ABD

Angle $ABD =$ ..... [1]

(c) the obtuse angle BOD.

Angle $BOD =$ ..... [1]

11 Expand and simplify.

$$(4+2\sqrt{3})(5-\sqrt{3})$$

..... [2]

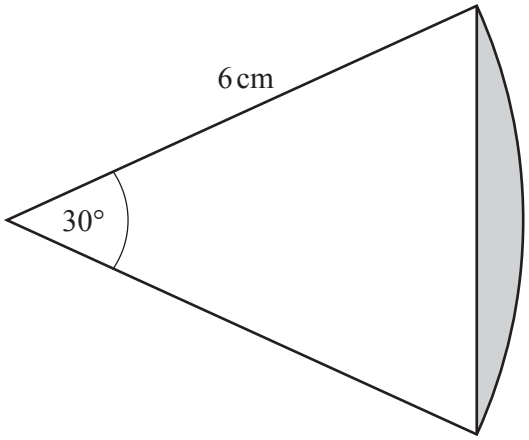
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12 y is inversely proportional to x^2.
When $x = 2$, $y = 10$.

Find y in terms of x.

$y =$ ..... [2]

13



NOT TO SCALE

The area of the shaded segment is $(a\pi + b)$ cm^2.

Find the value of a and the value of b.

$a =$ .....

$b =$ ..... [4]

Questions 14 and 15 are printed on the next page.

14 Solve $2\log x - 3\log 2 + \log 5 = 3$.

$x =$ ..... [4]

15 Write as a single fraction in its simplest form.

$$\frac{3}{x-1} - \frac{2}{2x+5}$$

..... [3]

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