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Cambridge Assessment International Education

# Cambridge IGCSE™

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

*2756489109*

**CAMBRIDGE INTERNATIONAL MATHEMATICS** **0607/23**

Paper 2 (Extended) **October/November 2024**

**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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[Turn over

## Formula List

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

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 $l$. $A = \pi rl$

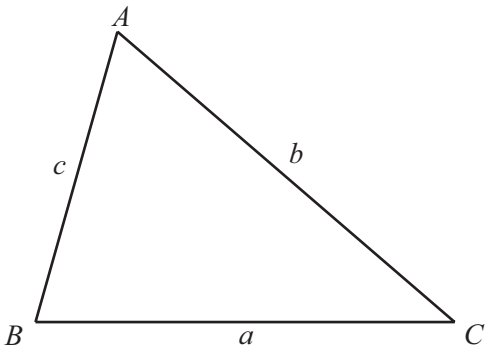
Curved surface area, $A$, of sphere of radius $r$. $A = 4\pi r^2$

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




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

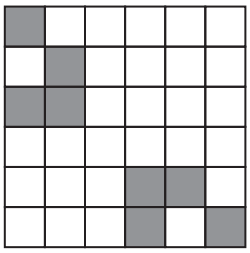
$a^2 = b^2 + c^2 - 2bc\cos A$

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

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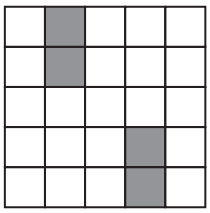
Answer **all** the questions.

**1** **(a)** Draw the line of symmetry on the diagram.



[1]

**(b)** Shade **four** small squares so that the diagram has rotational symmetry of order 4.



[1]

**2** Write these in order of size starting with the smallest.

$0.329 \qquad \frac{9}{27} \qquad 30\% \qquad \frac{3}{8}$

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

*smallest*

**3** By writing each number correct to 1 significant figure, work out an estimate for

$$\frac{6.98 \times 5.86}{29.7 - 8.85}.$$

..... [2]

**4** $|x| = 9$

Write down the values of $x$.

..... [1]

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**5** **(a)** Write $67\,200\,000$ in standard form.

..... [1]

**(b)** Work out $(3 \times 10^4) \times 100$.
Give your answer in standard form.

..... [2]

**6** A regular polygon has 8 sides.

**(a)** Write down the mathematical name of this polygon.

..... [1]

**(b)** Find the size of one exterior angle of the polygon.

..... [2]

**7** $f(x) = x^2 + bx + c$
The solutions to $f(x) = 0$ are $x = -2$ and $x = 5$.

Find the value of $b$ and the value of $c$.

$b =$ .....

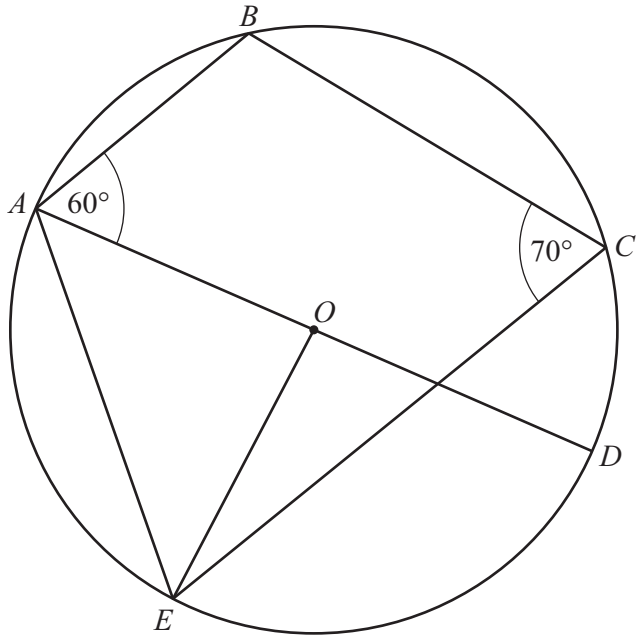
$c =$ ..... [2]

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**8** Simplify $\sqrt{18}$.

..... [1]

**9**




NOT TO SCALE

$A$, $B$, $C$, $D$ and $E$ are points on the circle centre $O$.
$AD$ is a diameter and $EC$ is a straight line.

Find angle $EOD$.

Angle $EOD$ = ..... [2]

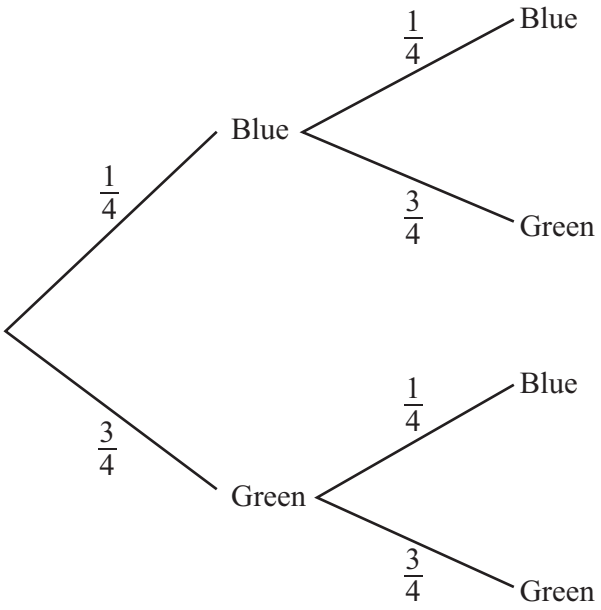
**10** Rearrange the formula to make $d$ the subject.

$$3d - 2e = 1 + ed$$

$d$ = ..... [3]

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**11** A bag contains blue pens and green pens.
Zoe takes a pen from the bag at random, records the colour and replaces the pen.
She then takes a second pen from the bag at random.
The probabilities are shown in the tree diagram.




**(a)** There are 40 pens in the bag.

Find the number of blue pens.

..... [1]

**(b)** Find the probability that Zoe takes a blue pen and then a green pen.

..... [2]

**(c)** Find the probability that Zoe takes at least one blue pen.

..... [2]

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**12** Simplify fully.

**(a)** $(2\sqrt{2})^4$

..... [2]

**(b)** $(2a^3b)^5$

..... [2]

**13** Factorise fully.

$$9x^4 - 81y^2$$

..... [3]

**14** **(a)** $\log x = 4$

Write down the value of $x$.

$x =$ ..... [1]

**(b)** Find the value of $y$ when $\log y = 3\log 2 + \log 3$.

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

**Question 15 is printed on the next page.**

**15** $\dfrac{1}{x-1} - \dfrac{x}{2x+4} = \dfrac{1}{2}$

Show that $x^2 - x - 3 = 0$.

[4]

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