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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.



Formula List

For the equation

$$ax^2 + bx + c = 0$$

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

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 .

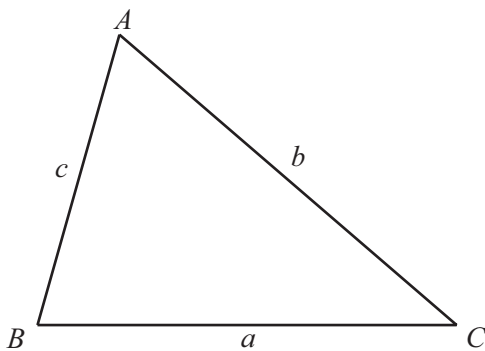
$$V = \pi r^2 h$$

Volume, V , of cone of radius r , height h .

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

Volume, V , of sphere of radius r .

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



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

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

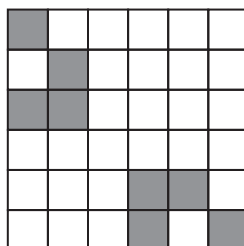
$$\text{Area} = \frac{1}{2}bc \sin A$$





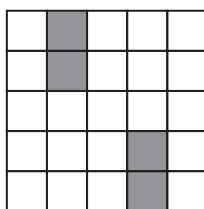
Answer **all** the questions.

- 1 (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 $\frac{9}{27}$ 30% $\frac{3}{8}$

.....,,, [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]





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]

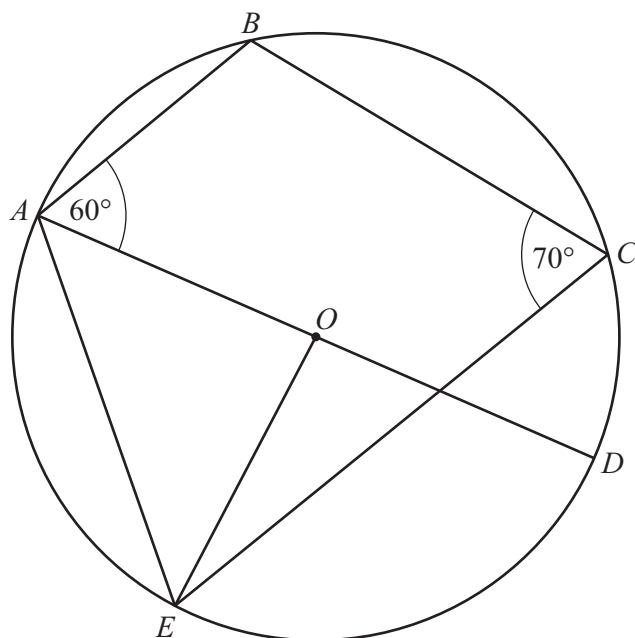




8 Simplify $\sqrt{18}$.

..... [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.

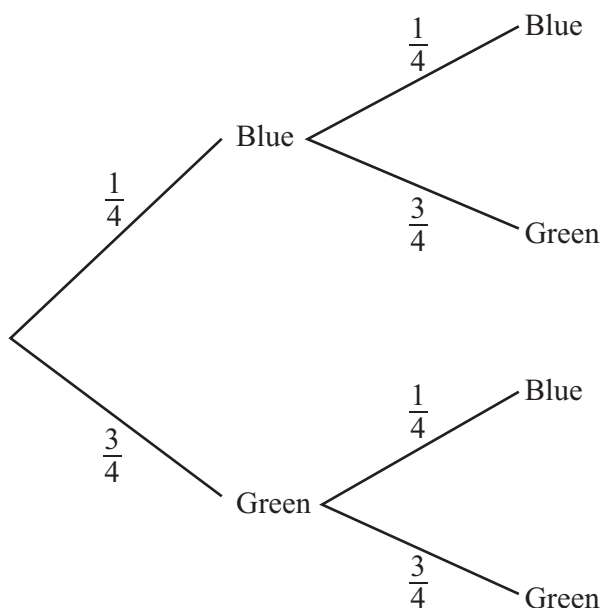
$$3d - 2e = 1 + ed$$

$d =$ [3]





- 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]





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
$$\frac{1}{x-1} - \frac{x}{2x+4} = \frac{1}{2}$$

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

[4]

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