Cambridge Assessment International Education

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4504808481

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

Paper 2 (Extended) **May/June 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. Any blank pages are indicated.

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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. $\quad A = \pi rl$

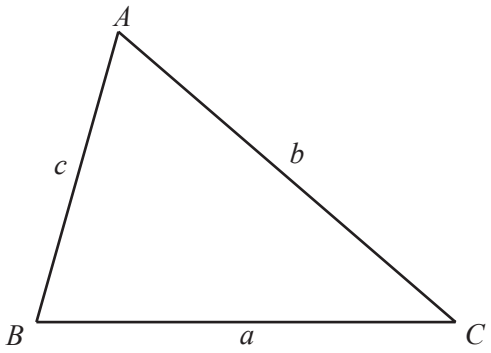
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 Work out.

2^4

..... [1]

2 **(a)** Write $\frac{12}{25}$ as a percentage.

.....% [1]

(b) Work out.

$\frac{2}{7}+\frac{4}{7}$

..... [1]

3 Simplify.

$3x-2y+x+y$

..... [2]

4 Change $270\,\text{mm}^2$ into m^2.

..... m^2 [1]

5 Write down the value of 9^0.

..... [1]

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6 Find the lowest common multiple (LCM) of 24 and 60.

..... [2]

7 Find the magnitude of $\begin{pmatrix} 9 \\ -3 \end{pmatrix}$.

Give your answer in its simplest surd form.

..... [2]

8 Write in standard form.

(a) 3 706 000

..... [1]

(b) 0.001 010

..... [1]

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9 A is the point (1, 3) and B is the point (3, −7).
The line l passes through A and is perpendicular to AB.

Find the equation of line l.
Give your answer in the form $py + qx = r$ where p, q and r are integers.

..... [4]

10 The table shows the favourite colour of each of 80 people.

Colour	Red	Blue	White	Green	Silver	Black	Yellow
Frequency	23	17	11	9	12	3	x

(a) Find the value of x.

..... [1]

(b) Find the relative frequency of silver, giving your answer as a fraction in its lowest terms.

..... [2]

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11 **(a)** Simplify.

$$\sqrt{50} - \sqrt{8}$$

..... [2]

(b) By rationalising the denominator, simplify

$$\frac{12}{\sqrt{7} - \sqrt{3}}.$$

..... [3]

12 Factorise completely.

$$x^3y^2 - xy$$

..... [2]

13 Sara has a bag containing 4 yellow balls and 5 white balls.
Sara takes a ball from the bag at random without replacement.
She then takes a second ball from the bag at random.

Find the probability that the two balls are different colours.

..... [3]

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14 Make x the subject of the formula.

$$\frac{p}{x} = \frac{q}{x-2}$$

$x =$ ..... [3]

15 Simplify.

$$1 + 3\log 2 - 2\log 3 - 2\log\frac{2}{3}$$

..... [4]

16 Solve the equation.

$$4(\cos x)^2 = 3 \quad \text{for} \quad 0° \leqslant x \leqslant 360°$$

$x =$ ..... [3]

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