Cambridge Assessment International Education

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6765421013

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

Paper 2 (Extended) **May/June 2021**

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

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. $\quad A = \pi rl$

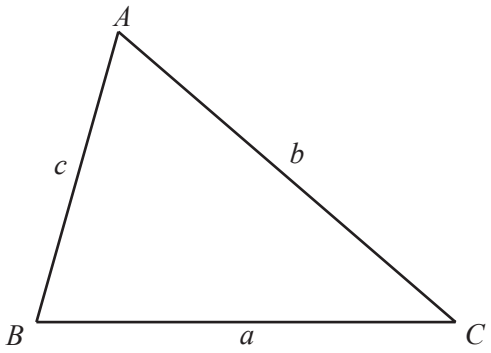
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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.

(a) $3 - 0.018$

..... [1]

(b) 0.04^2

..... [1]

(c) $\frac{0.08}{0.2}$

..... [1]

2 **(a)** Write 5249.6 correct to two significant figures.

..... [1]

(b) Write 0.0030626 correct to three decimal places.

..... [1]

3 A car travels 300 metres in 20 seconds.

Find the average speed of the car in

(a) metres per second,

..... m/s [1]

(b) kilometres per hour.

..... km/h [2]

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4 Solve.

(a) $2-4(5-2x)=0$

$x =$ ..... [2]

(b) $|2x-5|=9$

$x =$ ..... or $x =$ ..... [2]

5 Find the value of

(a) 64^0,

..... [1]

(b) $64^{\frac{1}{3}}$.

..... [1]

6 A regular polygon has 30 sides.

Find the size of one exterior angle.

..... [2]

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7 Factorise.

(a) $12ax - 2by + 3ay - 8bx$

..... [2]

(b) $5x^2 - 6x - 8$

..... [2]

8 **(a)** Work out $\begin{pmatrix} 12 \\ -5 \end{pmatrix} - 5\begin{pmatrix} 4 \\ -1 \end{pmatrix}$.

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [2]

(b) Work out the magnitude of $\begin{pmatrix} 3 \\ -4 \end{pmatrix}$.

..... [2]

9 Rearrange this equation to make x the subject.

$$\frac{a}{2x-3} = \frac{b}{5x}$$

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

10 **(a)** Solve.

$$\sin x = \frac{1}{2} \quad \text{for} \quad 0° \leqslant x \leqslant 90°$$

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

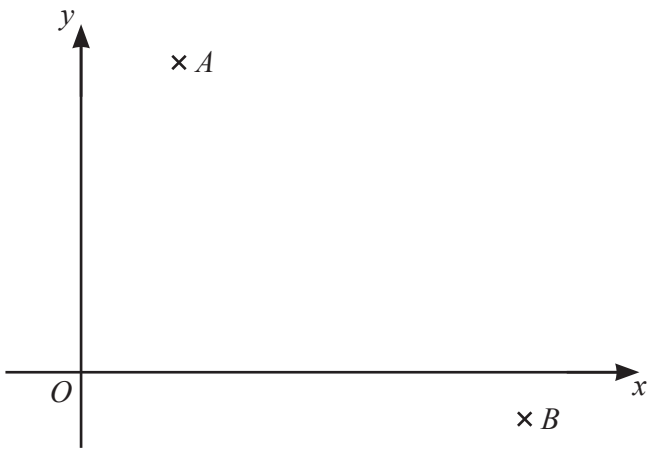
(b) Solve.

$$\sin x = -\frac{1}{2} \quad \text{for} \quad 0° \leqslant x \leqslant 360°$$

$x =$ ..... [2]

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NOT TO SCALE

The points A (2, 8) and B (6, −2) are shown on the diagram.

Find the equation of the perpendicular bisector of the line AB.
Give your answer in the form $y = mx + c$.

$y =$ ..... [5]

Question 12 is printed on the next page.

12 A bag contains 12 discs.
7 discs are red and 5 discs are green.
A disc is picked at random and not replaced.
A second disc is then picked at random.

Find the probability that

(a) both discs are green,

..... [2]

(b) at least one disc is green.

..... [3]

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