



# Cambridge IGCSE™

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NAME

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NUMBER

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**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.

## 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  $l$ .  $A = \pi rl$

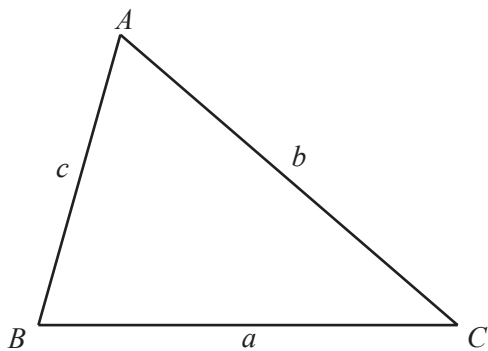
Curved surface area,  $A$ , of sphere of radius  $r$ .  $A = 4\pi r^2$

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 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]

4 Solve.

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

$x = \dots\dots\dots$  [2]

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

$x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [2]

5 Find the value of

(a)  $64^0$ ,

$\dots\dots\dots$  [1]

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

$\dots\dots\dots$  [1]

6 A regular polygon has 30 sides.

Find the size of one exterior angle.

$\dots\dots\dots$  [2]

7 Factorise.

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

..... [2]

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

..... [2]

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

$\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [2]

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

..... [2]

9 Rearrange this equation to make  $x$  the subject.

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

$$x = \dots\dots\dots [3]$$

10 (a) Solve.

$$\sin x = \frac{1}{2} \text{ for } 0^\circ \leq x \leq 90^\circ$$

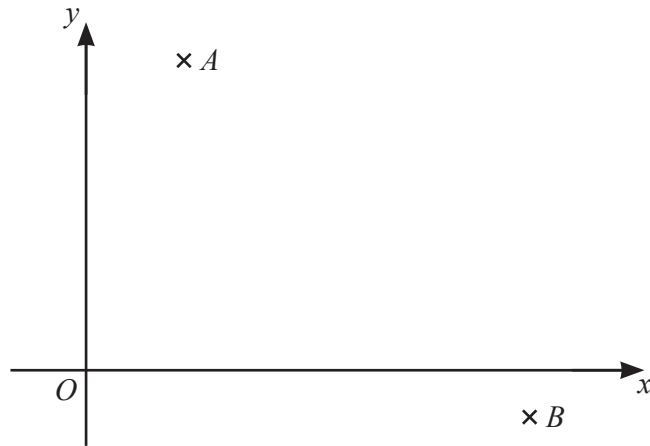
$$x = \dots\dots\dots [1]$$

(b) Solve.

$$\sin x = -\frac{1}{2} \text{ for } 0^\circ \leq x \leq 360^\circ$$

$$x = \dots\dots\dots [2]$$

11

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  $y = mx + c$ .

$y = \dots\dots\dots$  [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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