



# Cambridge IGCSE™

CANDIDATE  
NAME

CENTRE  
NUMBER

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**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/23**

Paper 2 (Extended)

**October/November 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. Any blank pages are indicated.

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

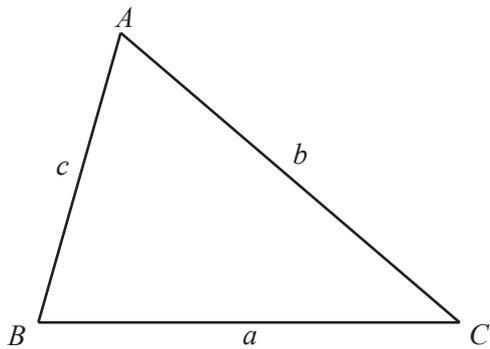
Curved surface area,  $A$ , of sphere of radius  $r$ .  $A = 4\pi r^2$

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)  $(-2) + (-3) - (-4)$

..... [1]

(b)  $(-2) \times (-3) \times (-4)$

..... [1]

2 91 93 95 97 99

From this list write down a prime number.

..... [1]

3 \$126 is divided into 3 shares in the ratio 1 : 2 : 4 .

Find the value of the largest share.

\$ ..... [2]

4 Solve.

(a)  $5 - 2x = 0$

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

(b)  $-12 + 2x = 5x - 3$

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

- 5 There are 640 students in a school.  
The table shows the favourite colour of each of the students.

Favourite colour	Blue	Green	Red	Yellow
Number of students	120	$2x$	280	$x$

- (a) Find the value of  $x$ .

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

- (b) Find the relative frequency of students whose favourite colour is red.  
Give your answer as a fraction in its lowest terms.

$$\dots\dots\dots [2]$$

- 6 (a) Simplify.

$$\sqrt{75} - \sqrt{27}$$

$$\dots\dots\dots [2]$$

- (b) Rationalise the denominator and simplify your answer.

$$\frac{10}{5 - \sqrt{5}}$$

$$\dots\dots\dots [3]$$

7  $A$  is the point  $(3, 7)$  and  $B$  is the point  $(9, -1)$ .

Calculate the length  $AB$ .

$AB = \dots\dots\dots$  [3]

8 (a) A regular polygon has 12 sides.

Work out the sum of the interior angles of the polygon.

$\dots\dots\dots$  [2]

(b) The interior angle of a regular polygon is  $x^\circ$ .

Find an expression, in terms of  $x$ , for the number of sides of this polygon.

$\dots\dots\dots$  [2]

9 Expand the brackets and simplify.

$$5x(2 - 3x) - 3x(3x - 2)$$

..... [2]

10 Solve the simultaneous equations.  
You must show all your working.

$$4x + 3y = -10$$

$$3x - 4y = 5$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [4]$$

11  $f(x) = \frac{1}{2x-5}$ ,  $x \neq 2.5$

(a) Find  $f(2)$ .

..... [1]

(b) Solve  $f(x) = 5$ .

..... [2]

12 
$$\frac{2x-3}{2x+3} - \frac{2x+3}{2x-3} = \frac{ax}{bx^2-c}$$

Find the values of  $a$ ,  $b$  and  $c$ .

$a = \dots\dots\dots$

$b = \dots\dots\dots$

$c = \dots\dots\dots$  [4]

- 13 A bag contains 12 discs.  
 There are 2 red discs, 4 blue discs, 5 green discs and 1 yellow disc.  
 A disc is chosen at random and not replaced.  
 A second disc is then chosen at random.

Find the probability that both discs are the same colour.

$\dots\dots\dots$  [3]

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