Cambridge Assessment International Education

Cambridge IGCSE™

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0296149060

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.

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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. $\quad A = \pi rl$

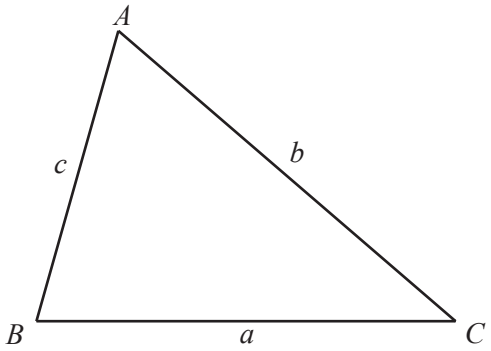
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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.

(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.

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

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

..... [2]

6 **(a)** Simplify.

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

..... [2]

(b) Rationalise the denominator and simplify your answer.

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

..... [3]

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

Calculate the length AB.

$AB =$ ..... [3]

8 **(a)** A regular polygon has 12 sides.

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

..... [2]

(b) The interior angle of a regular polygon is $x°$.

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

..... [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.

$$4x+3y=-10$$
$$3x-4y=\ \ 5$$

$x =$ .....

$y =$ ..... [4]

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

(a) Find $\mathrm{f}(2)$.

..... [1]

(b) Solve $\mathrm{f}(x)=5$.

..... [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.

$a =$ .....

$b =$ .....

$c =$ ..... [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.

..... [3]

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