Cambridge Assessment International Education

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8147553465

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

Paper 2 (Extended) **October/November 2020**

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. 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. $\quad A = \pi rl$

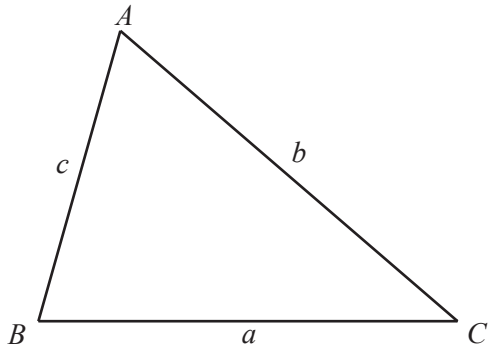
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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.

$$1 + 2 - 3 \times 4$$

..... [1]

2 Work out.

$$-48 \div -8$$

..... [1]

3 Simplify fully.

$$\frac{5x}{12} \times \frac{4}{15x}$$

..... [2]

4 Solve.

$$-3(1 - 4x) = 9$$

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

5 Divide 120 in the ratio 3 : 5.

..... , ... [2]

6 The mean of 5 numbers is 12.
The mean of 3 of these numbers is 8.

Find the mean of the other two numbers.

..... [3]

7 y varies inversely as x.
When $x = 3$, $y = 16$.

Find x when $y = 6$.

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

8 $\mathbf{a} = \begin{pmatrix} -4 \\ -3 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 2 \\ -1 \end{pmatrix}$

(a) Find $\mathbf{a} - 3\mathbf{b}$.

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

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

..... [2]

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9 A shop has a sale and all prices are reduced by 20%.

(a) The original price of a shirt is \$16.

Find the sale price of the shirt.

\$ ..... [2]

(b) The sale price of a dress is \$40.

Find the original price of the dress.

\$ ..... [2]

10 Factorise.

(a) $8x + 14$

..... [1]

(b) $8ax^2 - 6bx^3$

..... [2]

(c) $6ax + 9ay - 8bx - 12by$

..... [2]

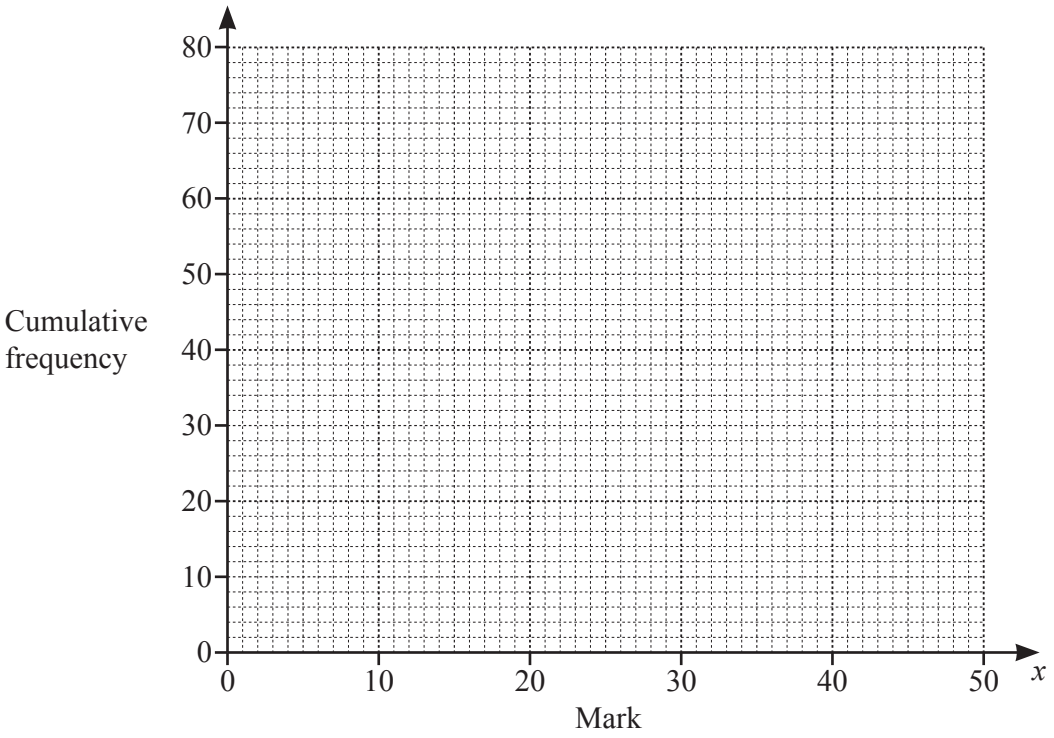
11 Work out $4^{-\frac{3}{2}}$.

..... [2]

12 The table shows the marks of 80 students in an examination.

Mark (x)	Frequency
$0 < x \leqslant 10$	8
$10 < x \leqslant 15$	16
$15 < x \leqslant 20$	25
$20 < x \leqslant 30$	17
$30 < x \leqslant 50$	14

(a) On the grid, draw a cumulative frequency curve to show this information.



[4]

(b) Use your graph to estimate the median mark of the students.

..... [1]

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13 A is the point (1, 7) and B is the point (4, 1).

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

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

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