Cambridge Assessment International Education

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2231545531

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

Paper 2 (Extended) **October/November 2022**

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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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. $\quad A = \pi rl$

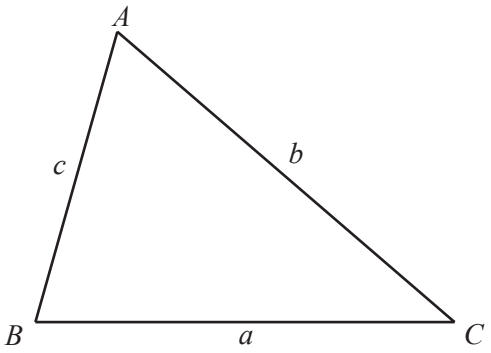
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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) $1+2-3\times4$

..... [1]

(b) $1+2\times3-4$

..... [1]

2 **(a)** Write $2\frac{1}{4}$ as an improper fraction.

..... [1]

(b) Work out.

$$\frac{7}{8}-\frac{3}{4}$$

..... [1]

3 Expand.

$$3(x-2y)$$

..... [1]

4 Change $0.2\,\text{m}^2$ into cm^2.

..... cm^2 [1]

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

..... [1]

6 **(a)** Work out $(1.5 \times 10^{1}) \times (7 \times 10^{-3})$.
Give your answer in standard form.

..... [2]

(b) Work out $(6.5 \times 10^{-2}) + (7.8 \times 10^{-3})$.
Give your answer in standard form.

..... [2]

7 These are the scores of 10 students in a test.

15 5 20 25 7 13 15 11 17 12

Find

(a) the range,

..... [1]

(b) the mean.

..... [2]

8 Find an expression for the nth term of each sequence.

(a) 1, 7, 13, 19, 25, …

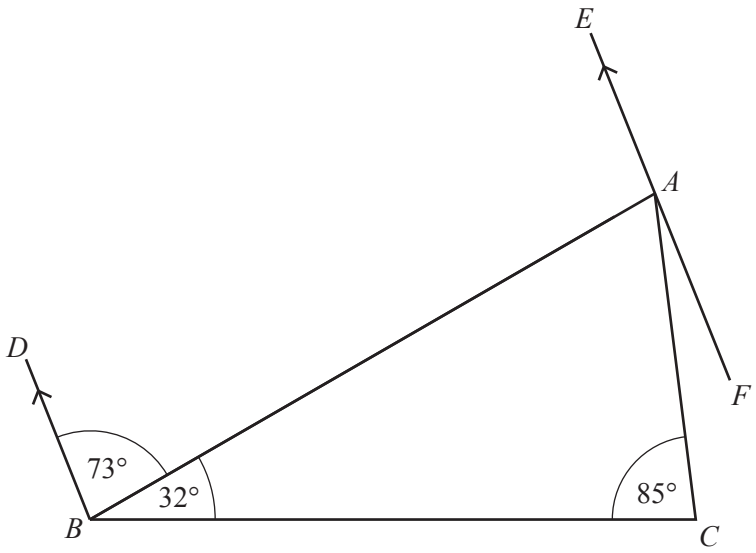
..... [2]

(b) 1, −2, 3, −4, 5, …

..... [2]

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NOT TO SCALE

BD is parallel to *FAE*.

(a) Find angle *BAE*.

Angle *BAE* = ... [1]

(b) Find angle *FAC*.

Angle *FAC* = ... [2]

10 A is the point (1, 11) and B is the point (4, 5).

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

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

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11 Solve.

(a) $4x^2 - 5x - 6 = 0$

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

(b) $|2x + 1| = 3$

..... [2]

12 Bag A contains balls numbered 2, 4, 4, 4.
Bag B contains balls numbered 1, 1, 2, 3, 4, 4.
Bag C contains balls numbered 1, 2, 3, 4.

One of these three bags is chosen at random.
A ball is chosen at random from this bag.

Find the probability that the ball chosen is numbered 4.
Give your answer as a fraction.

..... [3]

Questions 13 and 14 are printed on the next page.

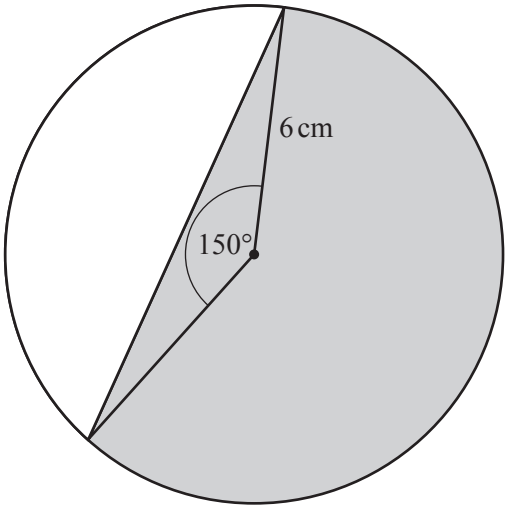
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13 Solve.

$$\log 2x = 5$$

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

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NOT TO SCALE

A sector of a circle with radius 6 cm has a sector angle of 150°.

Find the exact value of the area of the shaded region.
Give your answer in its simplest form.

..... cm^2 [4]

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