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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.

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 . $A = \pi rl$

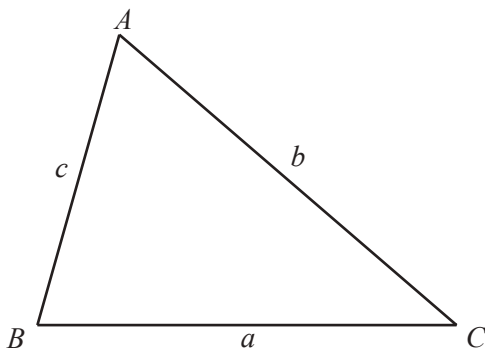
Curved surface area, A , of sphere of radius r . $A = 4\pi r^2$

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) $1 + 2 - 3 \times 4$

..... [1]

(b) $1 + 2 \times 3 - 4$

..... [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 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]

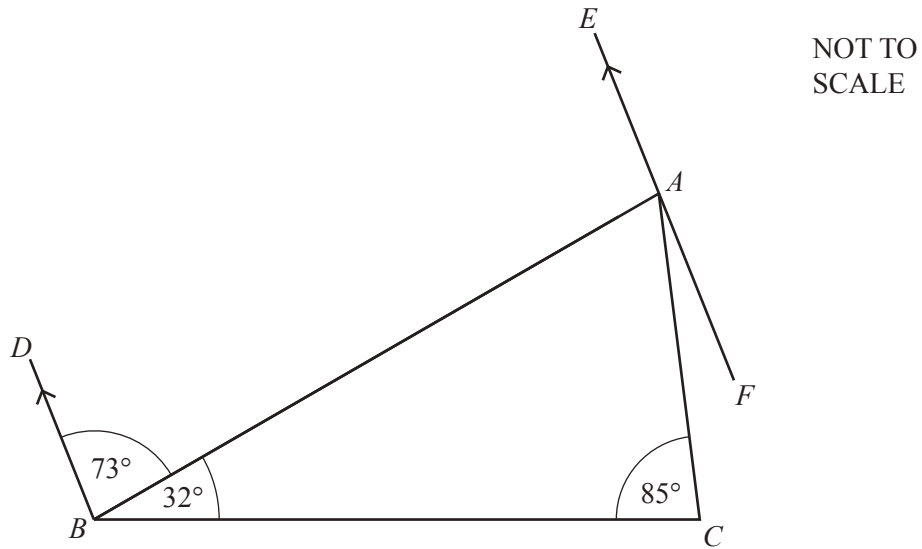
- 8 Find an expression for the n th term of each sequence.

- (a) 1, 7, 13, 19, 25, ...

..... [2]

- (b) 1, -2, 3, -4, 5, ...

..... [2]



BD is parallel to FAE .

(a) Find angle BAE .

Angle $BAE = \dots\dots\dots$ [1]

(b) Find angle FAC .

Angle $FAC = \dots\dots\dots$ [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 $y = mx + c$.

$y = \dots\dots\dots$ [5]

11 Solve.

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

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

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

$\dots\dots\dots$ [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.

$\dots\dots\dots$ [3]

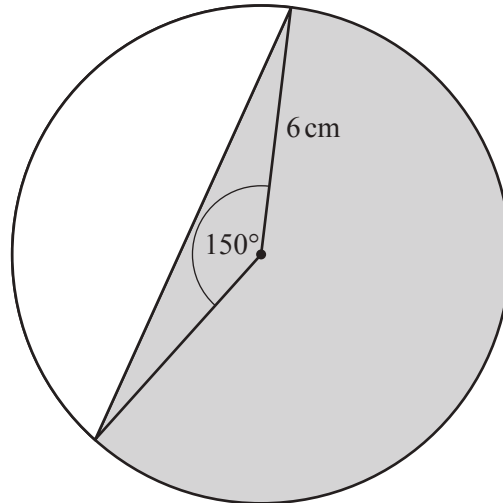
Questions 13 and 14 are printed on the next page.

13 Solve.

$$\log 2x = 5$$

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

14



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.

$$\dots\dots\dots \text{cm}^2 [4]$$

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