Cambridge Assessment International Education

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2562118173

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

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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[Turn over

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. $\quad A = \pi rl$

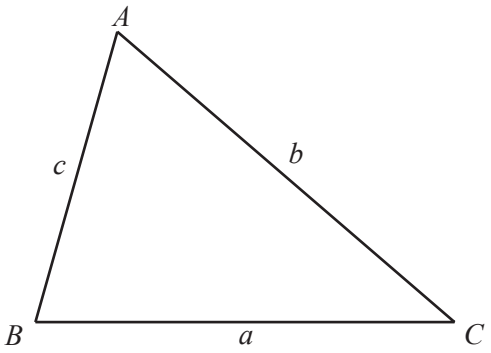
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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. $\quad V = \frac{4}{3}\pi r^3$



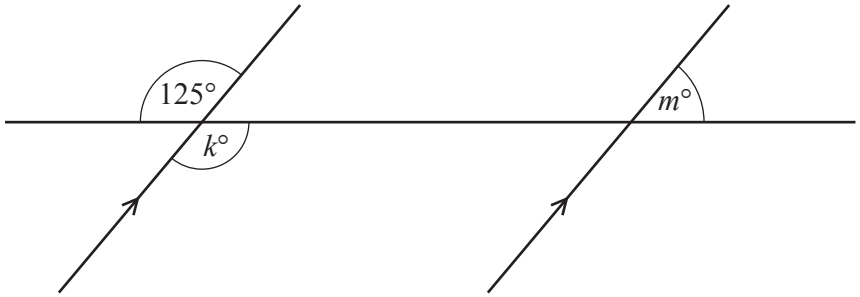
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$a^2 = b^2 + c^2 - 2bc\cos A$$

$$\text{Area} = \frac{1}{2}bc\sin A$$

Answer **all** the questions.

1



NOT TO SCALE

The diagram shows a straight line intersecting two parallel lines.

Find the value of k and the value of m.

$k =$ .....

$m =$ ..... [2]

2 Solve the equation.

$$2q - 7 = 2 - 7q$$

$q =$ ..... [2]

3 $1\,\text{m}^2 = 10^n\,\text{cm}^2$

Find the value of n.

$n =$ ..... [1]

4 Work out $1\frac{1}{3} - \frac{5}{6}$.

..... [2]

5 An unbiased six-sided die is numbered 1, 2, 3, 4, 5, 6.
The die is rolled.

Find the probability that it shows

(a) 6,

..... [1]

(b) a number greater than 6.

..... [1]

6 A cone has base radius 5 cm and height $\frac{5}{4}$ cm.

A hemisphere has radius r cm.
The volume of the hemisphere is equal to the volume of the cone.

Find the value of r.

$r =$ ..... [3]

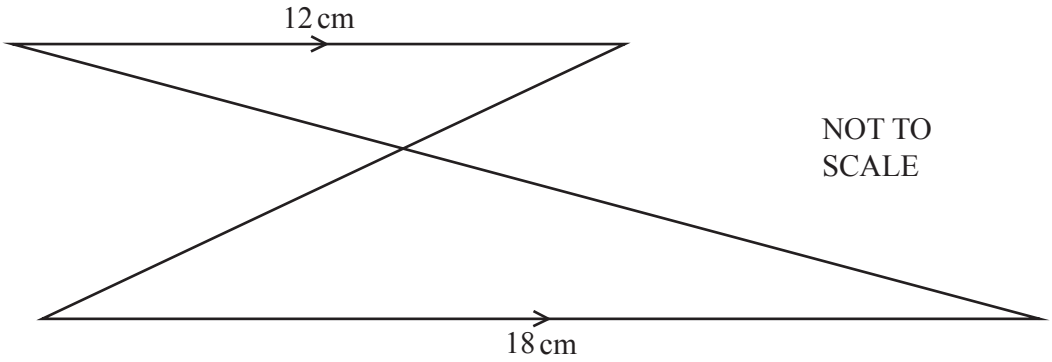
7 Simplify.

$$30t^{30} \div 5t^{5}$$

..... [2]

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8



The diagram shows two triangles formed by two parallel lines and two intersecting lines.

(a) Use one of these words to complete the statement.

alternate congruent similar cyclic parallel

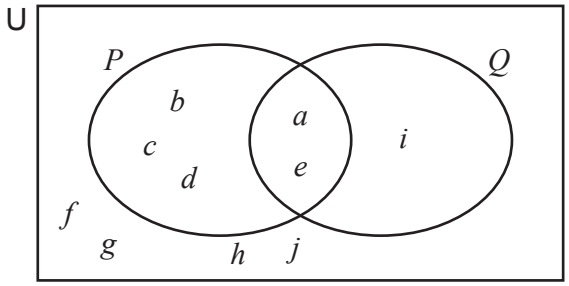
The triangles are ..... [1]

(b) The area of the smaller triangle is $24\,\text{cm}^2$.

Calculate the area of the larger triangle.

..... cm^2 [2]

9



$\mathsf{U} = \{a, b, c, d, e, f, g, h, i, j\}$

Complete each statement.

(a) $(P \cup Q)' = \{.....\}$ [1]

(b) $\{a, e\} = P.....Q$ [1]

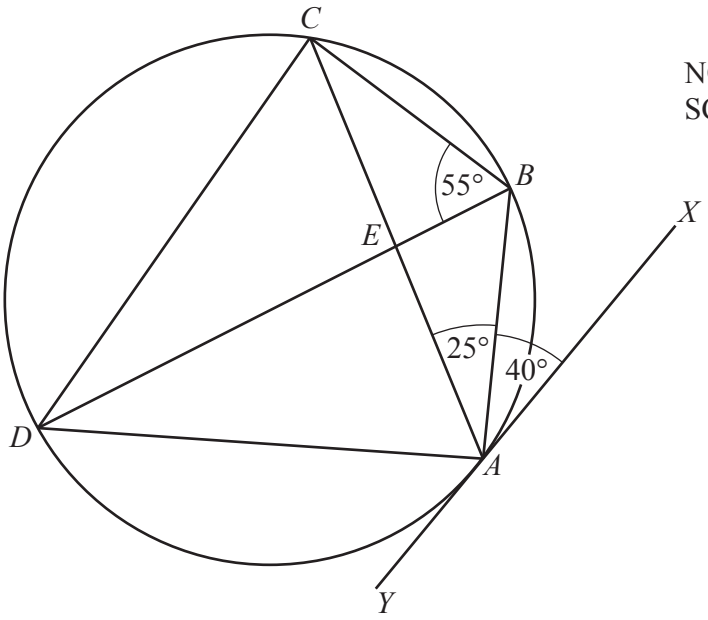
(c) $\text{n}(P' \cup Q) =$ ..... [1]

10 Rearrange the formula to write x in terms of a and y.

$$y = \sqrt{x^2 + 2a^2}$$

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

11



A, B, C and D are four points on a circle.
AC and BD meet at E.
XAY is a tangent to the circle at A.

Find

(a) angle CDB,

Angle $CDB =$ ..... [1]

(b) angle ACB,

Angle $ACB =$ ..... [1]

(c) angle DCE,

Angle $DCE =$ ..... [1]

(d) angle YAD.

Angle $YAD =$ ..... [1]

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12 Simplify $(3 \times 10^{85}) \times (7 \times 10^{15})$.
Give your answer in standard form.

..... [2]

13 Factorise.

(a) $49 - 16u^2$

..... [1]

(b) $1 + 4xy - 2x - 2y$

..... [2]

14 Rationalise the denominator.

$$\frac{5}{\sqrt{3} - \sqrt{2}}$$

..... [2]

15 $\log y = \log h + \log p - \log x$

Find y in terms of h, p and x.

$y =$ ..... [1]

Questions 16 and 17 are printed on the next page.

16 $8^{\frac{4}{3}} = 32^x$

Find the value of x.

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

17 Simplify.

$$2 - \frac{4-3x}{x-2}$$

Write your answer as a single fraction in its simplest form.

..... [3]

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