Cambridge Assessment International Education

Cambridge IGCSE™

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CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

Paper 2 Non-calculator (Extended) **October/November 2025**

1 hour 30 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. You will be given marks for correct methods even if your answer is incorrect.

INFORMATION

- The total mark for this paper is 75.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages.

[Turn over

List of formulas

Area, A, of triangle, base b, height h. $A = \frac{1}{2}bh$

Area, A, of circle of radius r. $A = \pi r^2$

Circumference, C, of circle of radius r. $C = 2\pi r$

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. $A = \pi rl$

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

Volume, V, of prism, cross-sectional area A, length l. $V = Al$

Volume, V, of pyramid, base area A, height h. $V = \frac{1}{3}Ah$

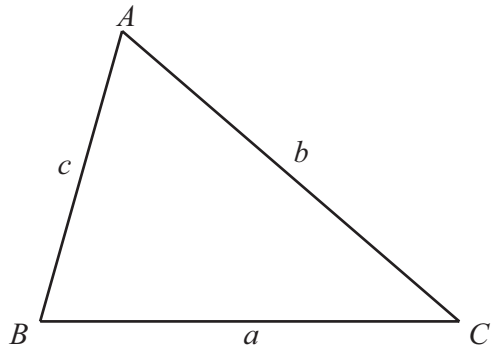
Volume, V, of cylinder of radius r, height h. $V = \pi r^2 h$

Volume, V, of cone of radius r, height h. $V = \frac{1}{3}\pi r^2 h$

Volume, V, of sphere of radius r. $V = \frac{4}{3}\pi r^3$

For the equation $ax^2 + bx + c = 0$, where $a \neq 0$, $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

For the triangle shown,



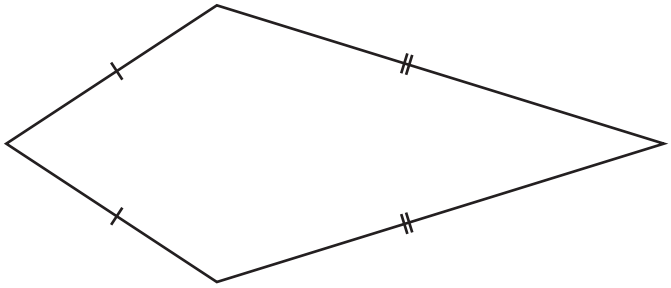
$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

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

Area $= \frac{1}{2}ab\sin C$

Calculators must **not** be used in this paper.

1



(a) Write down the mathematical name of this quadrilateral.

..... [1]

(b) Draw any lines of symmetry in the quadrilateral. [1]

2 Solve.

$7x + 3 = 3$

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

3 A train journey starts at 22 35 and takes 2 hours 30 minutes.

(a) Find the time this train journey ends.

..... [1]

(b) The distance of the journey is 200 km.

Work out the average speed of the train.

..... km/h [2]

4 Factorise.

$5t - 15t^2$

..... [2]

5 Work out.

$5\frac{1}{2} \times 1\frac{1}{11}$

..... [2]

6 These are the first 5 terms of a sequence.

$T_1 = 29 \qquad T_2 = 23 \qquad T_3 = 17 \qquad T_4 = 11 \qquad T_5 = 5$

(a) Find T_6.

..... [1]

(b) Find T_n.

..... [2]

7 $\mathrm{U} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

$A = \{\text{odd numbers}\}$
$B = \{\text{square numbers}\}$

(a) Find $A \cap B$.

..... [1]

(b) Find $\mathrm{n}(B')$.

..... [1]

8 The interior angle of a regular polygon is 168°.

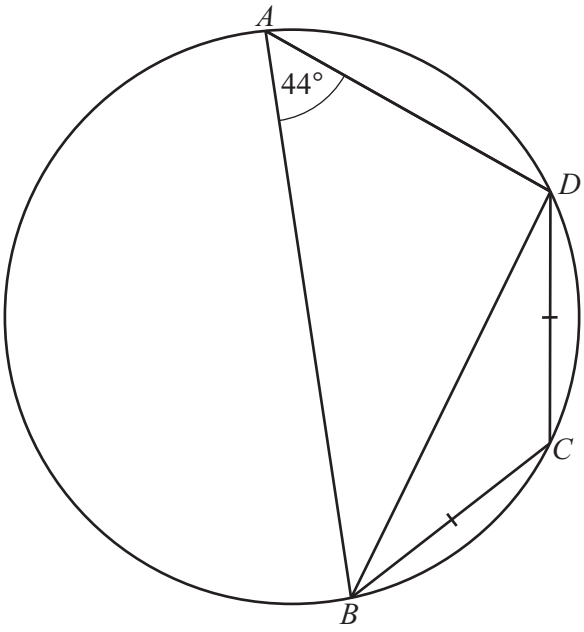
Work out the number of sides of this polygon.

..... [2]

9 Find the value of $81^{-\frac{3}{4}}$.

..... [2]

10



NOT TO SCALE

A, B, C, and D lie on the circle.
$BC = CD$.

(a) Work out angle CDB.

Angle CDB = ... [2]

(b) Explain why the line AC bisects angle BAD.

.....

..... [2]

11 **(a)** Work out $(5.7\times10^{17})\times(2\times10^{19})$.
Give your answer in standard form.

..... [2]

(b) Work out $(5.7\times10^{17})+(2\times10^{19})$.
Give your answer in standard form.

..... [2]

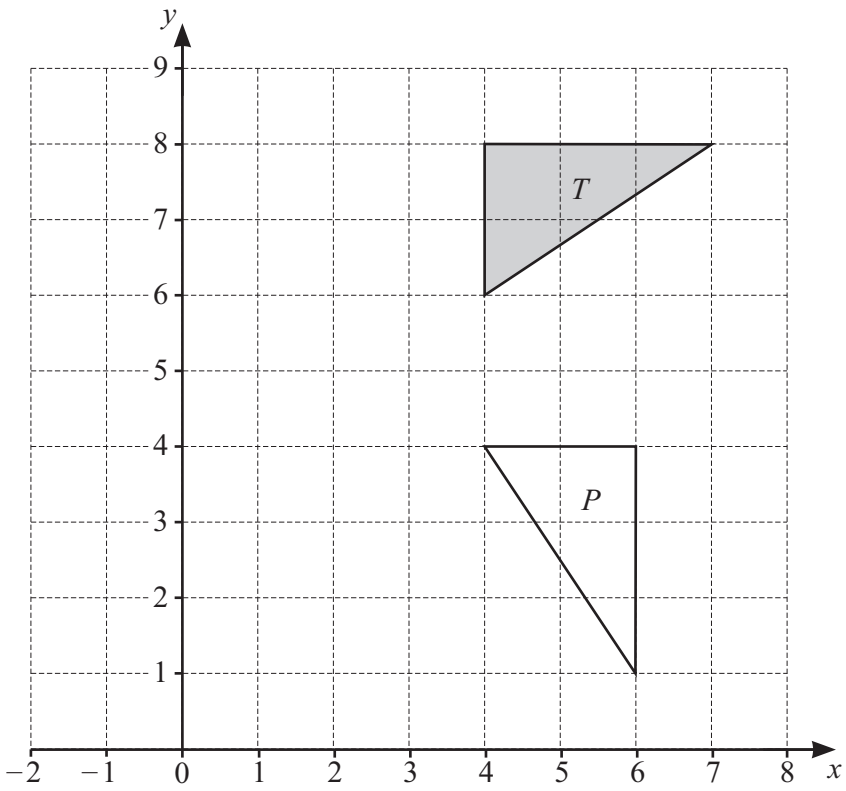
12 **(a)** Simplify $(x^3)^3$.

..... [1]

(b) Find the value of y when $2^{-y}=4^{3-y}$.

$y =$ ..... [2]

13



(a) Translate triangle T by the vector $\begin{pmatrix} -5 \\ -3 \end{pmatrix}$. [2]

(b) Describe fully the **single** transformation that maps triangle T onto triangle P.

.....

..... [3]

14 A is the point (3, 1) and B is the point (9, 9).

(a) Find the length of AB.

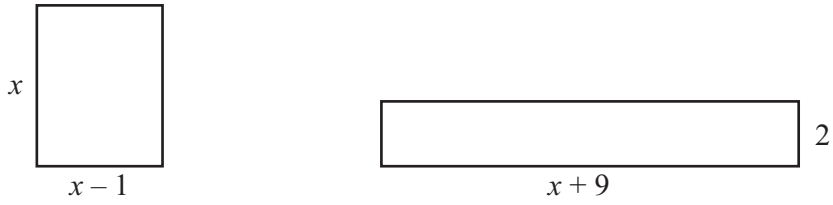
$AB =$ ..... [3]

(b) C is the point (5, −3).
Line L passes through A and the midpoint of BC.

Find the equation of line L.
Give your answer in the form $y = mx + c$.

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

15



NOT TO SCALE

The areas of the two rectangles are equal.

(a) Show that $x^2 - 3x - 18 = 0$.

[2]

(b) Factorise $x^2 - 3x - 18$.

..... [2]

(c) Find the difference between the perimeters of the two rectangles.

..... [3]

16 Rationalise the denominators.

(a) $\dfrac{5}{\sqrt{7}}$

..... [1]

(b) $\dfrac{1}{2-\sqrt{2}}$

..... [2]

17 The solutions to the equation $x^2 + bx + c = 0$ are $-1 \pm \sqrt{5}$.

Find the value of b and the value of c.

$b =$ .....

$c =$ .....
[3]

18 $f(x) = 5 - 3x$ $g(x) = \log x$

(a) Find f(3).

..... [1]

(b) Find $f^{-1}(x)$.

$f^{-1}(x) =$ ..... [2]

(c) Find $gf\left(-\frac{5}{3}\right)$.

..... [2]

19 Write as a single fraction in its simplest form.

$$\frac{5}{2x-3} - \frac{x}{x+1}$$

..... [3]

20 Janette travels to school by train.

The probability that the train is late on any day is $\frac{1}{5}$.

(a) Work out the number of days the train is expected to be late during a school term of 50 days.

..... [1]

(b) The train is not late for n consecutive days and is late on the next day.

The probability that this happens is $\frac{64}{625}$.

Find the value of n.

$n =$ ..... [2]

(c) Work out the probability that the train is late on only one day during a week of 5 school days.

..... [2]

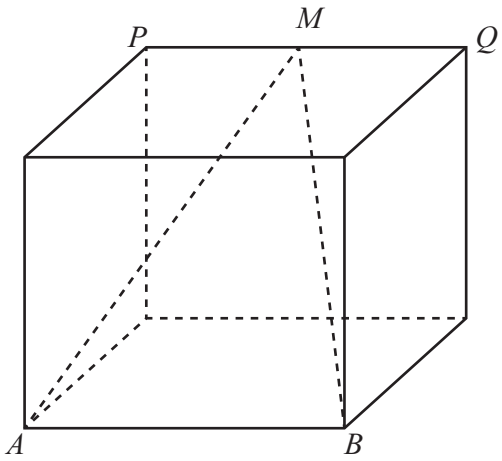
(d) On any day, when the train is late, the probability that Janette is late for school is $\frac{3}{4}$.

Find the probability that the train is late and Janette is **not** late for school.

..... [2]

Question 21 is printed on the next page.

21



NOT TO SCALE

The diagram shows a cube of side length $2x$.
M is the midpoint of PQ.
The perimeter of triangle $AMB = kx$.

Find the value of k.

$k =$ ..... [4]