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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.

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 .

$$V = \frac{1}{3}\pi r^2 h$$

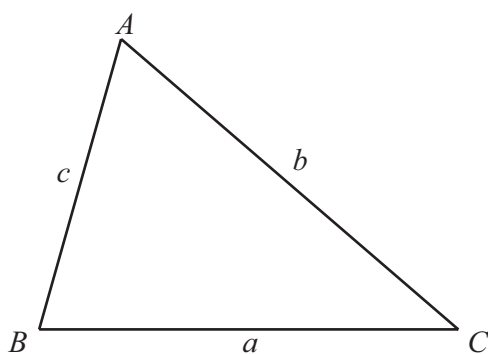
Volume, V , of sphere of radius r .

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

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,



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

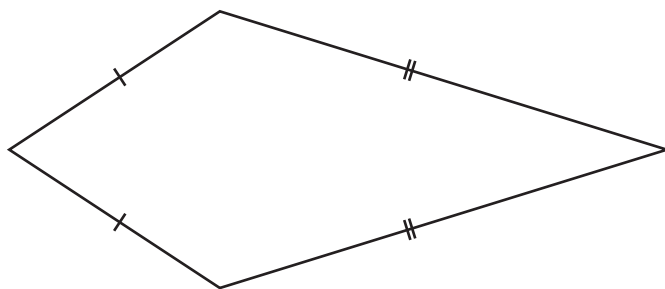
$$a^2 = b^2 + c^2 - 2bc \cos A$$

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



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.

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

(a) Find T_6 .

..... [1]

(b) Find T_n .

..... [2]



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

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

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

(a) Find $A \cap B$.

..... [1]

(b) Find $n(B')$.

..... [1]

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

Work out the number of sides of this polygon.

..... [2]

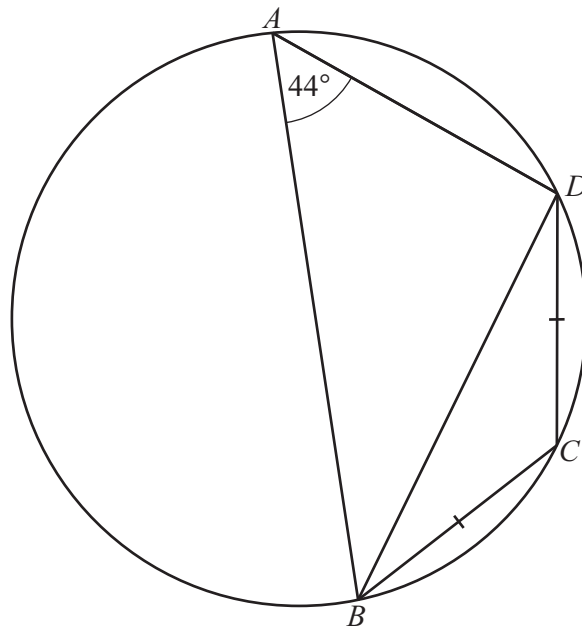
9 Find the value of $81^{-\frac{3}{4}}$.

..... [2]





10



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

(a) Work out angle $CDB.$

Angle $CDB = \dots\dots\dots$ [2]

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

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





- 11 (a) Work out $(5.7 \times 10^{17}) \times (2 \times 10^{19})$.
Give your answer in standard form.

..... [2]

- (b) Work out $(5.7 \times 10^{17}) + (2 \times 10^{19})$.
Give your answer in standard form.

..... [2]

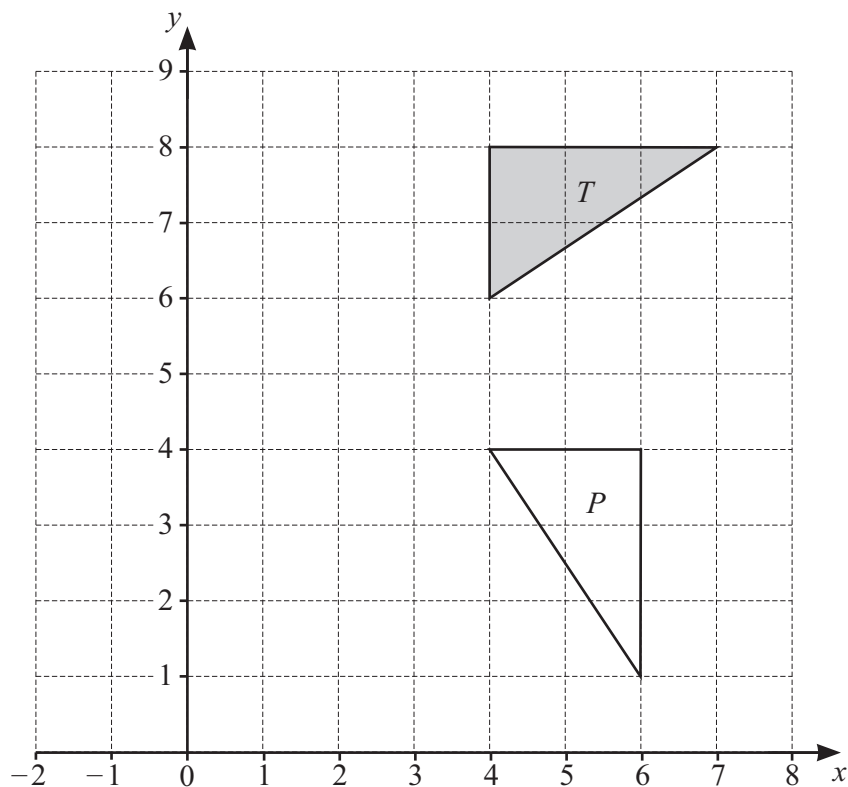
- 12 (a) Simplify $(x^3)^3$.

..... [1]

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

$y =$ [2]





(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 .

$AB = \dots\dots\dots$ [3]

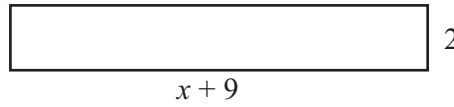
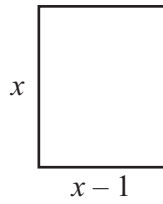
(b) C is the point $(5, -3)$.
Line L passes through A and the midpoint of BC .

Find the equation of line L .

Give your answer in the form $y = mx + c$.

$y = \dots\dots\dots$ [4]





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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) $\frac{5}{\sqrt{7}}$

..... [1]

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

..... [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]



$$f(x) = 5 - 3x$$

$$g(x) = \log x$$

(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]



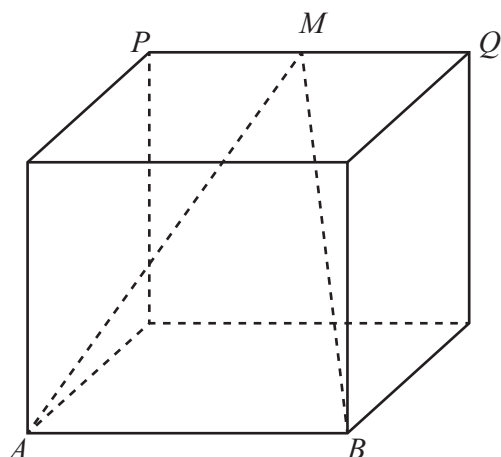
- (d) On any day, when the train is late, the probability that Janette is late for school is $\frac{3}{4}$.

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

..... [2]

Question 21 is printed on the next page.





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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 .

$k = \dots\dots\dots$ [4]

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