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International Education

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2818074012

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/42**

Paper 4 Calculator (Extended) **May/June 2026**

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. Do **not** use correction fluid or tape.
- Do **not** write on any bar codes.
- You should use a graphic display calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly. You will be given marks for correct methods, including sketches, even if your answer is incorrect.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For π, use either your calculator value or 3.142.

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. Any blank pages are indicated.

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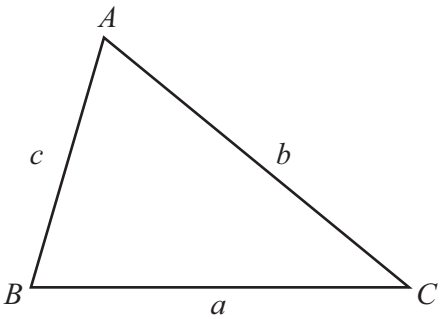
List of formulas

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,



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

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

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

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1 A quadrilateral has one line of symmetry and no rotational symmetry.

Write down the mathematical name of this quadrilateral.

..... [1]

2 Simplify.

$3c - d + 4c - d$

..... [2]

3 Simplify.

$\frac{5x}{y} \times \frac{3}{p}$

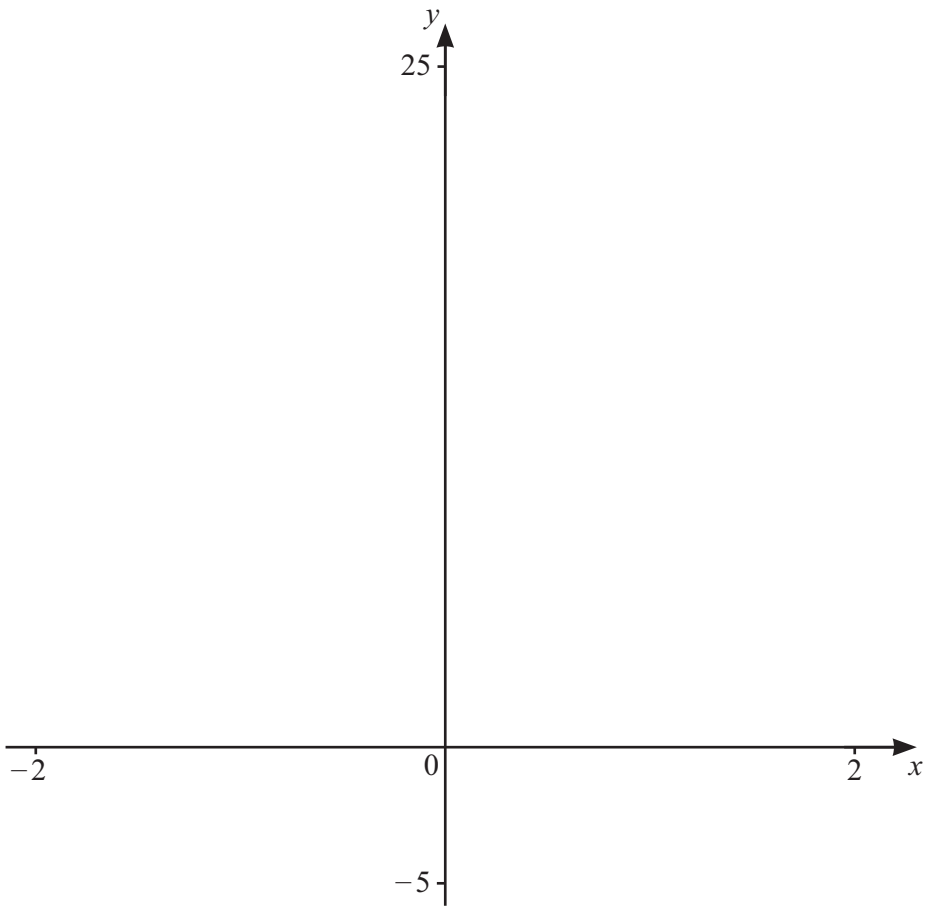
..... [1]

4 Factorise.

$2p^2 - 8pt$

..... [2]

5



$f(x) = \frac{5}{x^2} + \frac{1}{x^3}, \quad x \neq 0$

(a) On the diagram, sketch the graph of $y = f(x)$ for values of x between -2 and 2. [3]

(b) Find the zero of $f(x)$.

..... [1]

(c) Find the coordinates of the local maximum point.

(..... , ...) [2]

(d) The equation $f(x) = k$ has one solution.

Find the range of values of k.

..... [2]

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(e) $h(x) = \dfrac{5}{(x+1)^2} + \dfrac{1}{(x+1)^3}, \quad x \neq -1$

Describe fully the **single** transformation that maps the graph of $y = f(x)$ onto the graph of $y = h(x)$.

.....

..... [2]

6 **(a)** Find the highest common factor (HCF) of 180 and 96.

..... [2]

(b) Find the lowest common multiple (LCM) of x^{12} and x^{14}.

..... [1]

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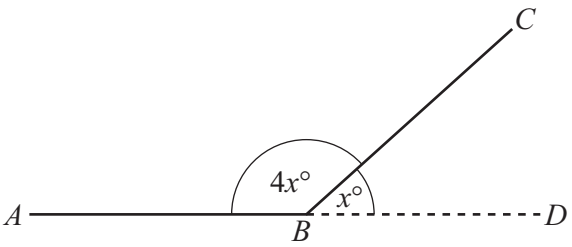
7 Prices are reduced by 20% in a sale.
The sale price of a computer is \$284.80 .

Calculate the original price of the computer.

\$ ..... [2]

8



NOT TO SCALE

AB and *BC* are two sides of a regular polygon.
ABD is a straight line.

Find the number of sides of this polygon.

..... [2]

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9 Use the quadratic formula to solve $3p^2 - p - 3 = 0$.
Give your answers correct to 2 decimal places.
You must show all your working.

$p =$ ..... or $p =$ ..... [3]

10 $y \propto \frac{1}{x^3}$

When $x = 2$, $y = \frac{1}{4}$.

Find y in terms of x.

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

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11 These are the first 5 terms of a sequence.

80 −40 20 −10 5

(a) Write down the next term.

..... [1]

(b) Find the nth term.

..... [2]

12 The value of a car decreases at a rate of 10% per year.
The value of the car now is $22 680.

(a) Calculate the value of the car 2 years ago.

$ ..... [2]

(b) The value of the car now is $22 680.

Calculate the number of complete years it will take for the value of the car to be first less than $10 000.

..... [4]

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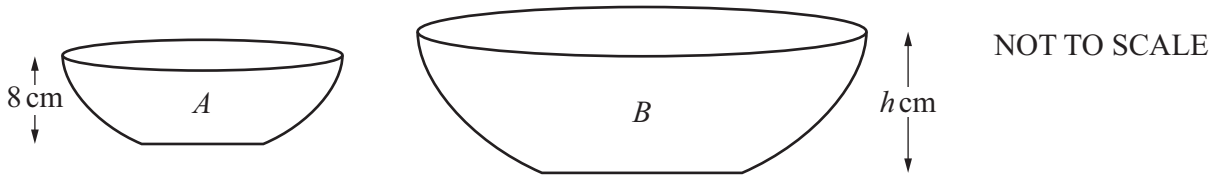
13 **(a)** Calculate $\left(6.2\times10^{87}\right)\times\left(3\times10^{87}\right)$.
Give your answer in standard form.

..... [2]

(b) Simplify $\left(4\times10^{y}\right)+\left(8\times10^{y-1}\right)$ where y is an integer.
Give your answer in standard form.

..... [2]

14



NOT TO SCALE

The two solids are mathematically similar.
The volume of solid B is 2 times the volume of solid A.
The height of solid A is 8 cm.
The height of solid B is h cm.

Find the value of h.

$h =$ ..... [2]

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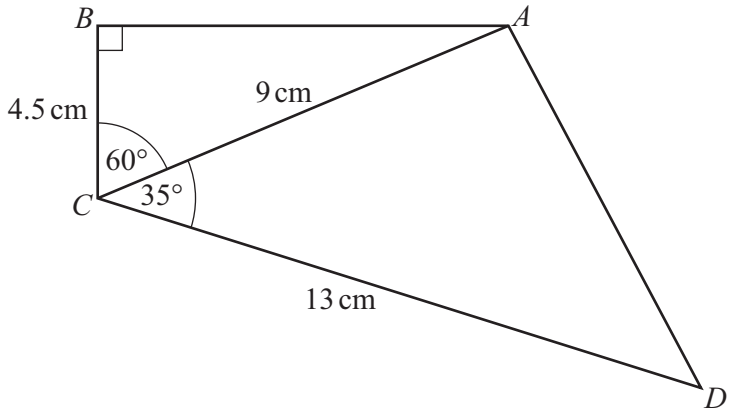

NOT TO SCALE

(a) Calculate the area of the quadrilateral *ABCD*.

..... cm^2 [3]

(b) Calculate the perimeter of the quadrilateral *ABCD*.

..... cm [5]

(c) *P* is the point on the line *CD* that is the nearest point to *A*.

Calculate *CP*.

CP = ... cm [3]

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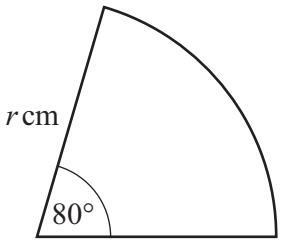
16 The diagram shows a sector of a circle.



NOT TO SCALE

The area of the sector is $62.6\,\text{cm}^2$.

Calculate the value of r.

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

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17 Each of 100 students recorded the time spent doing homework one evening.
The results are shown in the table.

time (t minutes)	$0 < t \leqslant 60$	$60 < t \leqslant 90$	$90 < t \leqslant 120$	$120 < t \leqslant 180$
frequency	7	31	45	17

(a) Calculate an estimate of the mean.

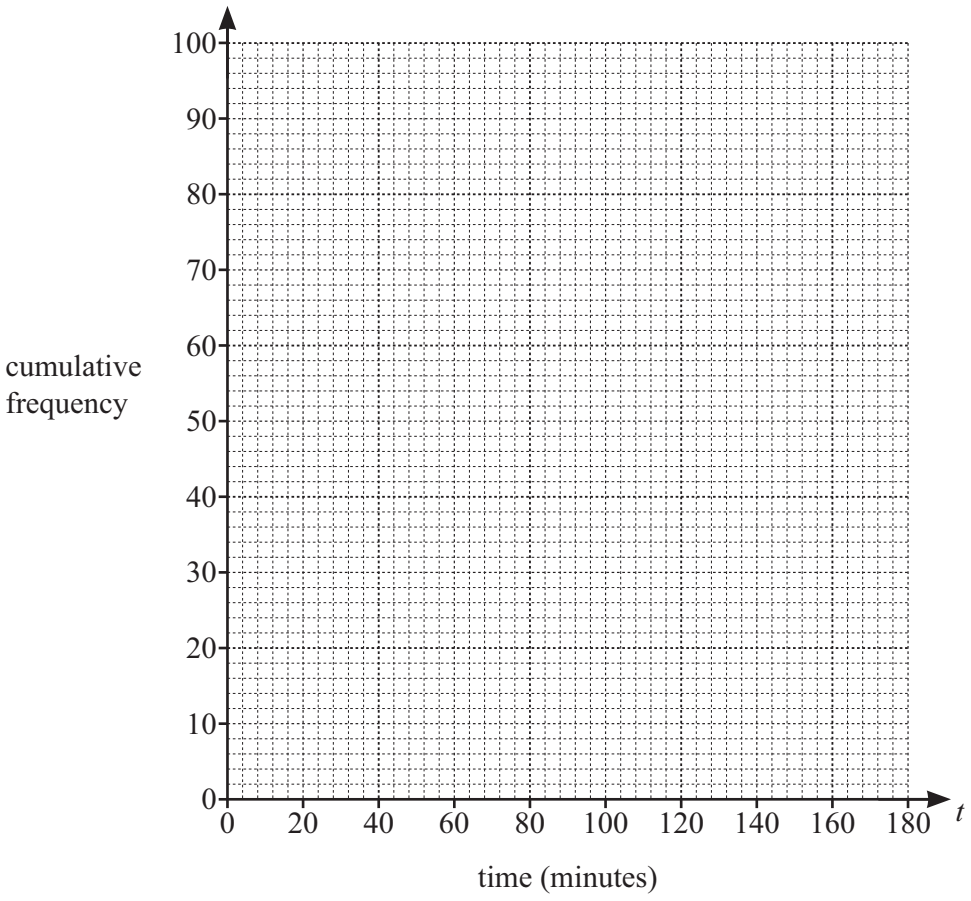
..... min [2]

(b) (i) Complete the cumulative frequency table.

time (t minutes)	$t \leqslant 60$	$t \leqslant 90$	$t \leqslant 120$	$t \leqslant 180$
cumulative frequency	7			100

[1]

(ii) On the grid, draw a cumulative frequency diagram.



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(iii) Use your cumulative frequency diagram to estimate

(a) the median

..... [1]

(b) the lower quartile

..... [1]

(c) the number of students who spent 70 minutes or less on their homework.

..... [1]

(c) Two of the 100 students are chosen from the same time interval in the first table.

The probability of choosing both these students is $\frac{1}{5}$.

Complete the time interval they were chosen from.
Show how you decide.

..... $< t \leqslant$ ..... [2]

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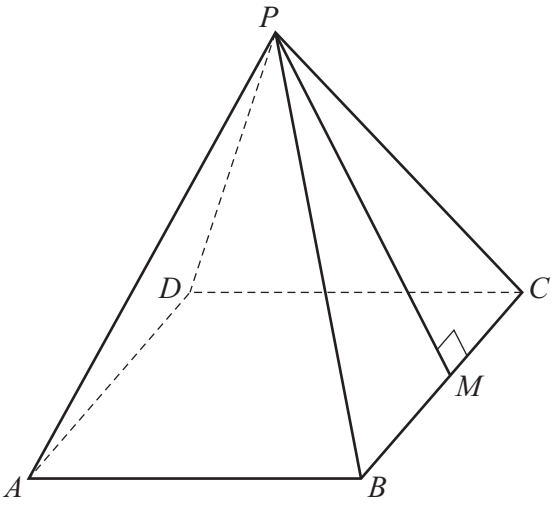
18 The diagram shows a pyramid on a square base $ABCD$.



NOT TO SCALE

M is the midpoint of BC.
$BC = 10\,\text{cm}$ and $PM = 12\,\text{cm}$.

(a) Calculate the area of triangle PBC.

..... cm^2 [1]

(b) Calculate the total surface area of the pyramid.

..... cm^2 [1]

(c) Calculate the angle between PM and the base $ABCD$.

..... [2]

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19 Simplify.

$$\frac{1-w^2}{1+wx-w-x}$$

..... [4]

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