Cambridge Assessment International Education

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CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/43**

Paper 4 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.
- 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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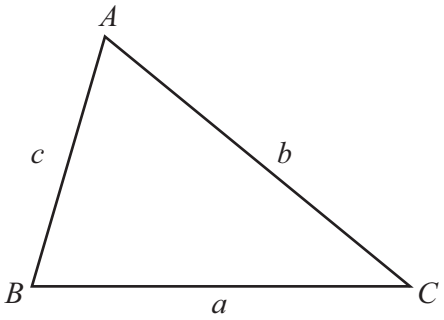
List of formulas

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,

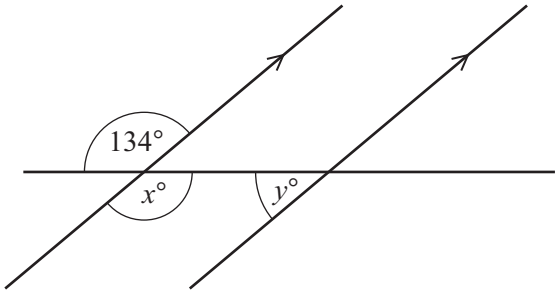


$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

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

1



NOT TO SCALE

The diagram shows a straight line intersecting 2 parallel lines.

Find the value of x and the value of y.

$x =$ .....

$y =$ .....

[2]

2 Calculate $\dfrac{\sqrt[3]{20.2} - 1.7^{\frac{1}{2}}}{5.1}$.

Give your answer correct to 4 decimal places.

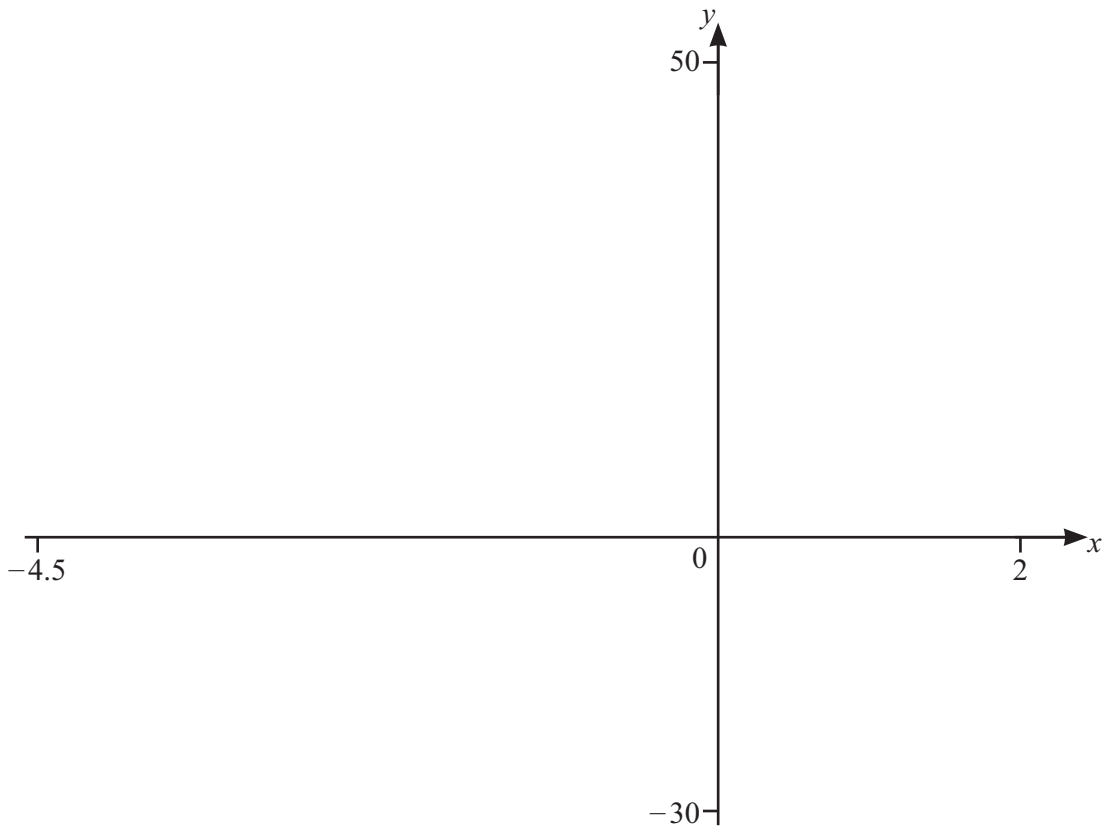
..... [2]

3 The exchange rate between pounds and rupees is 1 pound = 350.4 rupees.

Convert 84 000 rupees into pounds.

..... pounds [1]

4



$f(x) = x^4 + 4x^3$ for values of x between -4.5 and 2.

(a) On the diagram, sketch the graph of $y = f(x)$. [2]

(b) Write down the zeros of $f(x)$.

..... [2]

(c) Write down the coordinates of the local minimum point.

(..... , ...) [1]

(d) The equation $f(x) = k$ has no solutions.

Find the range of values of k.

..... [1]

(e) Solve the equation $f(x) = 20 + 10x$.

..... [3]

(f) **(i)** On the diagram, sketch the line $x = -2$. [1]

(ii) Shade and label the region R where $x \leqslant -2$, $y \geqslant f(x)$ and $y \leqslant 20 + 10x$. [1]

5 Solve the simultaneous equations.
You must show all your working.

$$3x - y = 1$$
$$5x + 2y = -24$$

$x =$ .....

$y =$ .....
[3]

6 The price of a computer is reduced by 10%.
The price of the computer is then reduced by a further 15%.

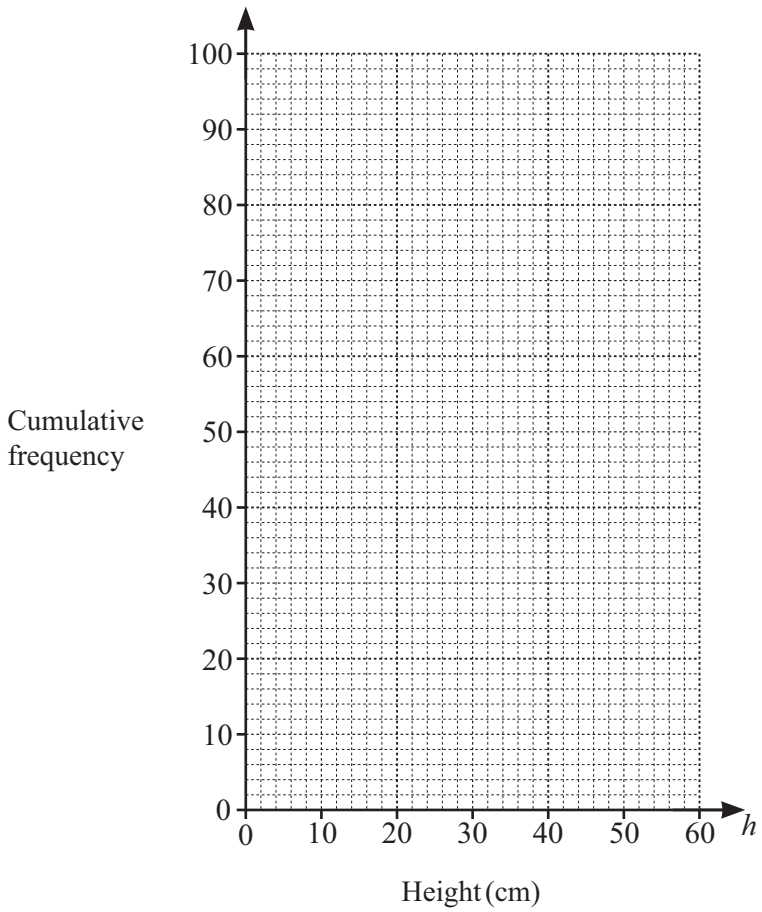
Calculate the overall percentage reduction in the price of the computer.

..... % [2]

7 The heights of 100 plants are measured.
The results are shown in the cumulative frequency table.

Height (h cm)	$h \leqslant 5$	$h \leqslant 10$	$h \leqslant 20$	$h \leqslant 40$	$h \leqslant 60$
Cumulative frequency	7	32	63	85	100

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



[3]

(ii) Use your cumulative frequency diagram to find an estimate of

(a) the median

..... cm [1]

(b) the number of plants with a height greater than 30 cm.

..... [2]

(b) (i) Complete the frequency table for the 100 plants.

Height (h cm)	$0 < h \leqslant 5$	$5 < h \leqslant 10$	$10 < h \leqslant 20$	$20 < h \leqslant 40$	$40 < h \leqslant 60$
Frequency	7	25			15

[1]

(ii) Calculate an estimate of the mean.

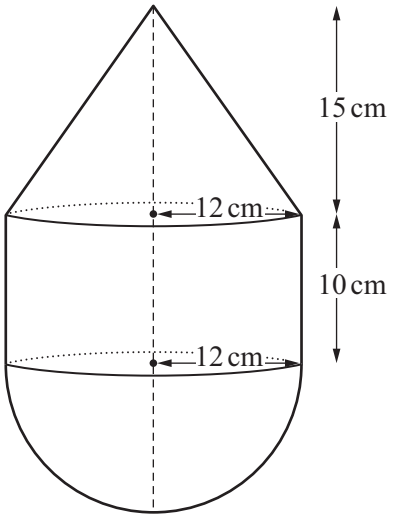
..... cm [2]

8 $\mathbf{v} = \begin{pmatrix} k \\ 4.35 \end{pmatrix}$ $|\mathbf{v}| = 5.33$

Find the value of k.

$k =$ ..... [3]

9



NOT TO SCALE

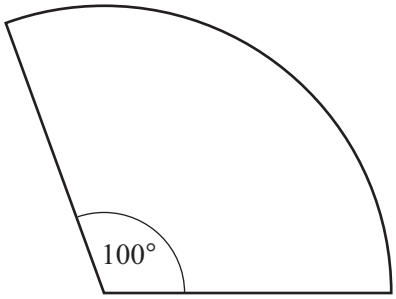
The diagram shows a solid made with a cone, a cylinder and a hemisphere.

The radius of each of the cone, the cylinder and the hemisphere is 12 cm.
The height of the cone is 15 cm.
The height of the cylinder is 10 cm.

Calculate the total surface area of the solid.

..... cm^2 [5]

10



NOT TO SCALE

The diagram shows a sector of a circle.
The perimeter of the sector is 48.4 cm.

Calculate the area of the sector.

..... cm^2 [4]

11 $y = x^3 - a$

Rearrange the formula to make x the subject.

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

12 $y \propto \dfrac{1}{\sqrt{x+1}}$

When $x = 8$, $y = 5$.

Find y when $x = 24$.

$y =$ ..... [3]

13 Rob and Sal each have \$500 to invest.

(a) Rob invests his \$500 at a rate of 2.5% per year **simple** interest.

Calculate the total value of Rob's investment at the end of 4 years.

\$ ..... [3]

(b) Sal invests her \$500 at a rate of 1.95% per year **compound** interest.

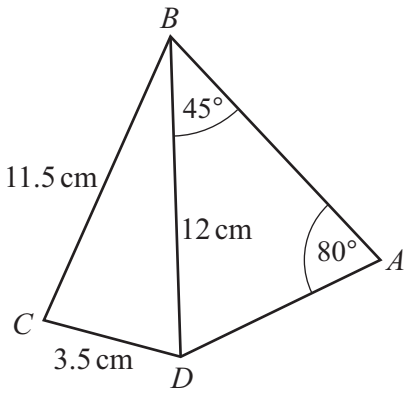
(i) Calculate the value of Sal's investment at the end of 4 years.

\$ ..... [2]

(ii) Find the number of complete years it takes for the total value of Sal's investment of \$500 to be first greater than \$800.

..... [4]

14



NOT TO SCALE

The diagram shows a quadrilateral *ABCD* with diagonal *BD*.

(a) Calculate *AB*.

AB = ... cm [3]

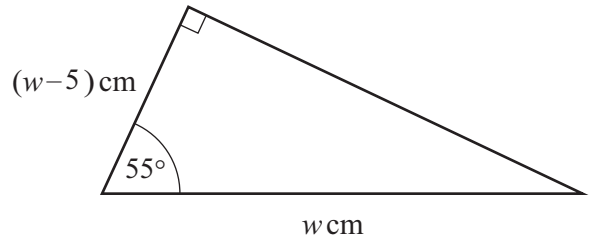
(b) Calculate angle *CBD*.

Angle *CBD* = ... [3]

(c) Calculate the area of triangle *ABC*.

..... cm^2 [2]

15



NOT TO SCALE

The diagram shows a right-angled triangle.

Calculate the value of w.

$w =$ ..... [3]

16 Simplify.

$$\frac{1-2x}{ab-2abx+2x-1}$$

..... [3]

17 Solid A is mathematically similar to solid B.

The surface area of solid A is $383\,cm^2$.
The surface area of solid B is $792\,cm^2$.
The volume of solid B is $1810\,cm^3$.

Find the volume of solid A.

..... cm^3 [3]

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18 Solve $1+\tan x=-1$ for $0° \leqslant x \leqslant 180°$.

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

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