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CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/04

Paper 4 Calculator (Extended)

For examination from 2025

SPECIMEN PAPER

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 **14** pages. Any blank pages are indicated.

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 . $V = \frac{1}{3}Ah$

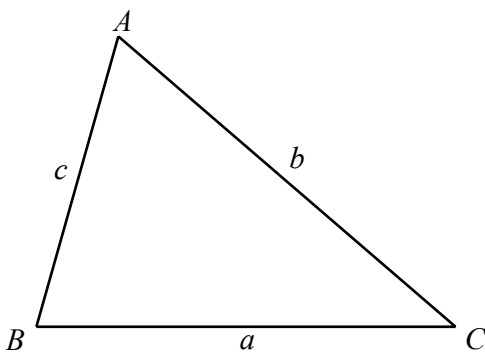
Volume, V , of cylinder of radius r , height h . $V = \pi r^2 h$

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,



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

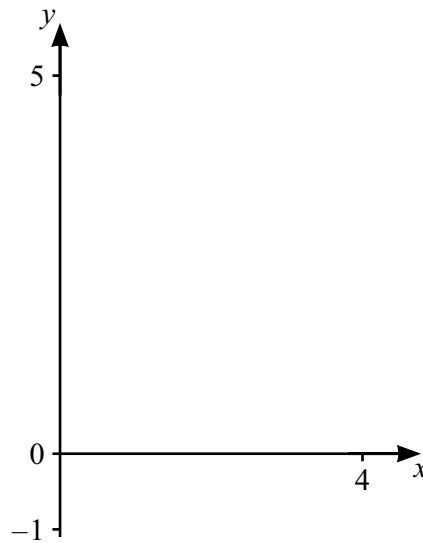
$$a^2 = b^2 + c^2 - 2bc \cos A$$

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

- 1 Calculate $\frac{0.1^3 - 0.5^2}{0.3^4}$, giving your answer correct to 2 significant figures.

..... [2]

2



$$f(x) = 5 - 1.25x \quad g(x) = 1.5x - 1$$

- (a) On the diagram, sketch the graph of $y = f(x)$ for $0 \leq x \leq 4$. [2]
- (b) On the diagram, sketch the graph of $y = g(x)$ for $0 \leq x \leq 4$. [2]
- (c) Find x when $f(x) = g(x)$.

$x =$ [1]

- 3 In Switzerland the cost of a shirt is 22 Swiss francs.
In France the cost of the same shirt is 19 euros.
1 euro = 1.08 Swiss francs.

Calculate the difference between the cost in Switzerland and the cost in France.
Give your answer in Swiss francs.

..... Swiss francs [2]

- 4 The table shows the daily maximum temperature and the daily minimum temperature during a week in a town.

Maximum temperature ($x^{\circ}\text{C}$)	28	25	26	26	30	31	27
Minimum temperature ($y^{\circ}\text{C}$)	14	13	14	13	16	16	15

- (a) Write down the type of correlation between the daily maximum temperature and the daily minimum temperature.

..... [1]

- (b) Find the equation of the line of regression, giving y in terms of x .

$y =$ [2]

- 5 A is the point $(2, 7)$ and B is the point $(-4, 11)$.

Find the coordinates of the midpoint of the line AB .

(.....,) [2]

- 6 100 students each cut a piece of string.
 Each student then measures the length, x cm, of their piece of string.
 The results are shown in the table.

Length (x cm)	$9 < x \leq 10$	$10 < x \leq 10.5$	$10.5 < x \leq 11$	$11 < x \leq 12.5$	$12.5 < x \leq 15$
Frequency	7	48	35	6	4

- (a) Calculate an estimate of the mean.

..... cm [2]

- (b) Joe picks one of the 100 pieces of string at random.

Write down the probability that this piece of string has a length greater than 15 cm.

..... [1]

- (c) Kira picks two of the 100 pieces of string at random.

Calculate the probability that both of these pieces of string have a length greater than 11 cm.

..... [2]

- (d) Lenny picks two of the pieces of string with a length greater than 11 cm at random.

Calculate the probability that both of these pieces of string have a length greater than 12.5 cm.

..... [2]

7 Solve the equation.

$$\frac{y-3}{7} = \frac{2y+1}{5}$$

$$y = \dots\dots\dots [3]$$

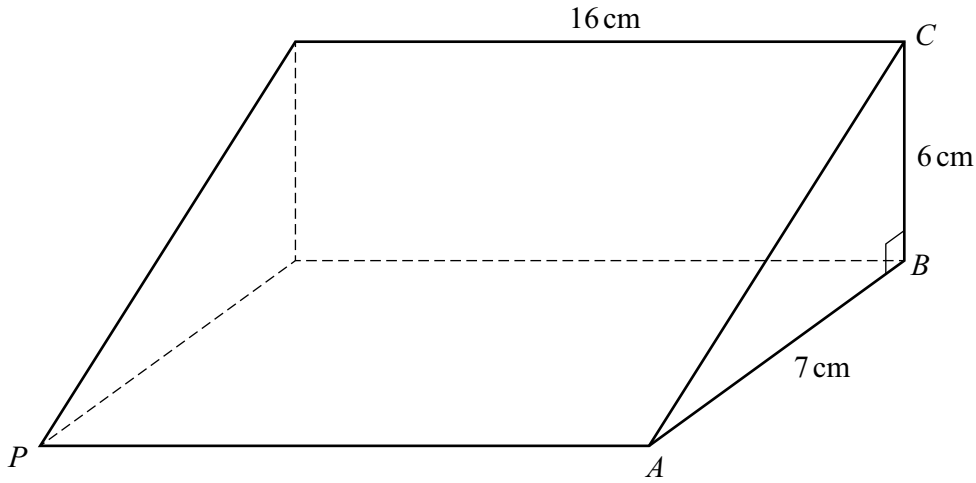
8 Factorise.

(a) $xy + 2wx$

$$\dots\dots\dots [1]$$

(b) $2px - x + 14p - 7$

$$\dots\dots\dots [2]$$



NOT TO SCALE

The diagram shows a prism of length 16 cm.
 Triangle ABC is a cross-section of the prism with $AB = 7$ cm, $BC = 6$ cm and angle $ABC = 90^\circ$.

(a) Calculate the area of triangle ABC .

..... cm^2 [1]

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

..... cm^2 [4]

(c) Calculate the length of PC .

..... cm [3]

10 (a) The population of a village increases exponentially at a rate of 6% per year. In 2023 the population was 901.

(i) Calculate the population in 2022.

..... [2]

(ii) Calculate the population in 2026.

..... [2]

(iii) Find the number of complete years it takes for the population of 901 to first become greater than 1600.

..... [4]

- (b) In another village, the population increases exponentially at a rate of $r\%$ per year. At the end of 5 years, the overall increase in the population is 10.41% .

Find the value of r .

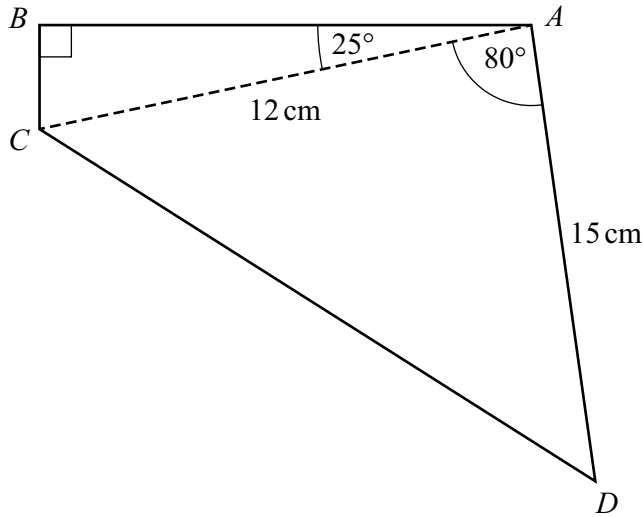
$$r = \dots\dots\dots [3]$$

- 11 Expand and simplify.

$$(x + 7y)(x - y)(x - 6y)$$

$$\dots\dots\dots [3]$$

12



NOT TO SCALE

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

..... cm^2 [4]

(b) Calculate the length of CD .

..... cm [3]

(c) Calculate the shortest distance from A to CD .

..... cm [6]

13 $2^{3x+1} = 8^{2-x}$

Find the value of x .

$x =$ [3]

14 Solve the equation $\sin x = -0.75$ for $0^\circ \leq x \leq 360^\circ$.

..... [2]

15 $f(x) = p \cos(qx)$
The amplitude of $f(x)$ is 3 and the period is 30° .

Find $f(10)$.

..... [3]

16 $\log(3x) = 3$

Find the value of x .

$x =$ [2]

- 17 Use a graphical method to solve the inequality.
Show a sketch of the graph.

$$2^x + x > 5$$

..... [3]

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