GradeMax

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Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME

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CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/42**

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 **12** pages.

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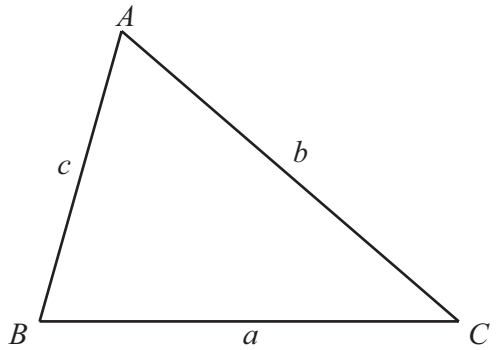
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List of formulas

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)** By writing each number correct to 1 significant figure, find an estimate for

$$\frac{44.9}{\sqrt{140}} - \frac{2.09^2}{(3.7-1.85)}.$$

You must show your working.

..... [2]

(b) Calculate.

$$\frac{44.9}{\sqrt{140}} - \frac{2.09^2}{(3.7-1.85)}$$

..... [1]

2 The table shows the marks scored by 100 students in a test.

Mark	1–10	11–20	21–40	41–60	61–80	81–90	91–100
Number of students	2	8	17	21	14	25	13

(a) One of these students is chosen at random.

Find the probability that this student scored more than 90 marks.

..... [1]

(b) Write down the group that contains the median.

..... [1]

(c) Calculate an estimate for the mean.

..... [2]

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3 Simplify.

$3x - 4y + x - 5y$

..... [2]

4 The interior angles of a quadrilateral are 67°, 112°, $x°$ and $(x - 7)°$.

Find the value of x.

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

5 Calculate the area of a circle which has a diameter of 6.4 cm.

..... cm^2 [2]

6 Share 630 in the ratio 5 : 7.

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

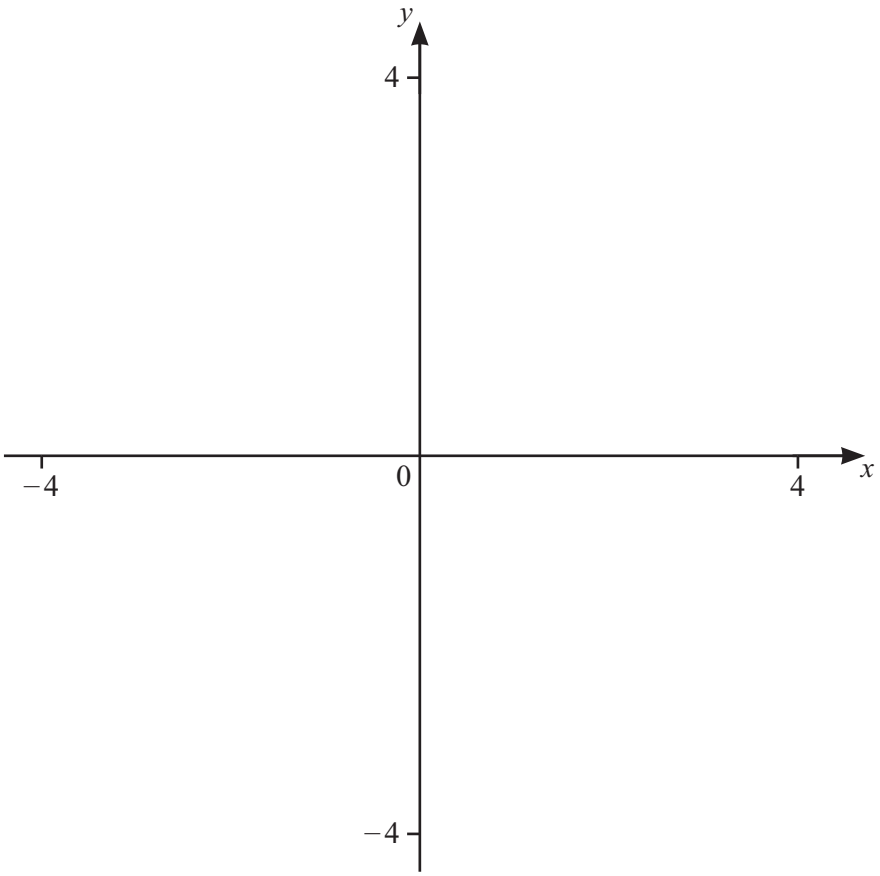
7 Factorise.

$3ax + 4by - 3ay - 4bx$

..... [2]

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8



(a) $f(x) = \dfrac{1}{(2x-1)(x+1)} - 1$

(i) On the diagram, sketch the graph of $y = f(x)$ for values of x between -4 and 4. [3]

(ii) Write down the x-intercepts.

..... [2]

(iii) Write down the equations of the asymptotes parallel to the y-axis.

..... [2]

(b) $g(x) = 0.5(x+1)$

On the diagram, sketch the graph of $y = g(x)$ for values of x between -4 and 4. [1]

(c) Solve the inequality $f(x) \geqslant g(x)$.

..... [3]

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9 A bag contains 5 black balls and 7 white balls.
One ball is chosen at random and not replaced.
A second ball is then chosen at random.

Find the probability that both balls are black.

..... [2]

10 The table shows the marks of 10 students in a French test and in a Spanish test.

French mark (x)	27	32	36	44	57	65	78	86	89	93
Spanish mark (y)	28	12	40	47	59	68	75	82	83	89

(a) Find the equation of the regression line for y in terms of x.

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

(b) Use your equation to estimate the Spanish mark when the French mark is 5.

..... [1]

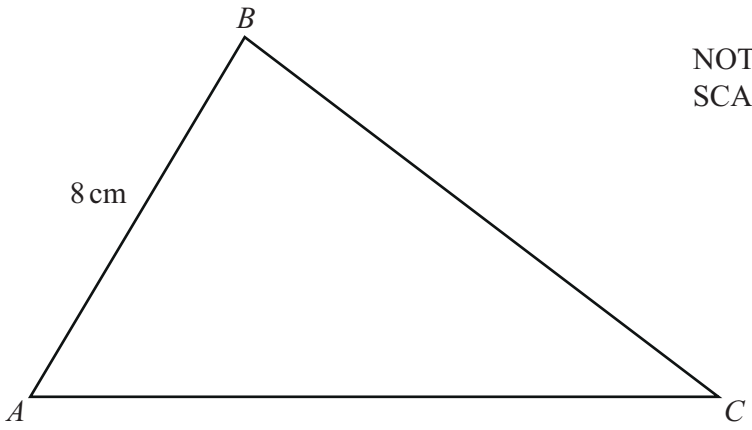
(c) Is your answer to **part (b)** likely to be a reliable estimate of the Spanish mark?
Give a reason for your answer.

.....

..... [1]

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11



NOT TO SCALE

Angle $ABC = 90°$ and angle $BAC = 65°$.

Calculate BC.

$BC =$ ..... cm [2]

12 Solve.

$$\frac{2x-5}{3} - \frac{5}{6} = \frac{1-4x}{2}$$

$x =$ ..... [4]

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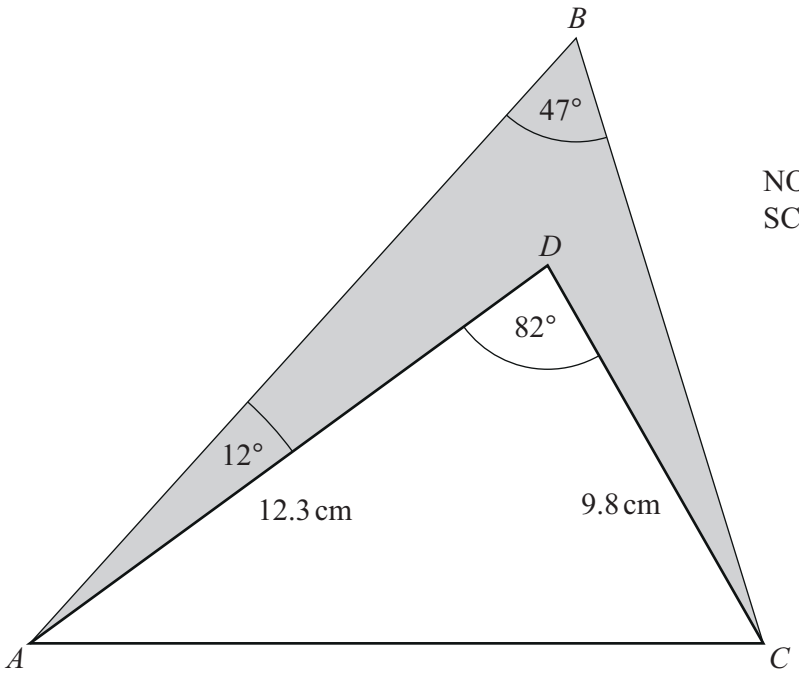
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13 Factorise.

$$3x(2x-y)^2+4(2x-y)^3$$

..... [3]

14



ABC and *ADC* are triangles.
AD = 12.3 cm and *CD* = 9.8 cm.
Angle *ABC* = 47°, angle *ADC* = 82° and angle *BAD* = 12°.

(a) Find *AC*.

AC = ... cm [3]

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(b) Show that angle $DAC = 41.6°$, correct to 1 decimal place.

[3]

(c) $BC = 16.1$ cm.

Find the area of the shaded quadrilateral $ABCD$.

..... cm^2 [4]

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15 Erik invests $\$x$.

(a) He receives compound interest at a rate of 7.5% each year.

(i) At the end of 5 years, the value of Erik's investment is \$11 485.

Show that $x = 8000$ correct to the nearest dollar.

[3]

(ii) Find the number of complete years it takes for the total value of his investment of \$8000 to be first greater than \$16 000.

..... [4]

(b) The compound interest rate of 7.5% each year is equivalent to a compound interest rate of y% each month.

Find the value of y.

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

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16 A spinner has 24 equal sections.
Each section is coloured red or blue.
There are x red sections and all other sections are blue.

The spinner is equally likely to land on any of its sections.
The spinner is spun twice and the colour that the spinner lands on each time is recorded.

The probability that the spinner lands on blue exactly once is $\frac{4}{9}$.

Find the possible values of x.

$x =$ ..... or $x =$ ..... [5]

Questions 17 is printed on the next page.

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17 A solid cone has base radius r and vertical height $3r$.
The total surface area of the cone is $209.22\ \text{cm}^2$.

(a) Find r.

$r =$ ..... cm [4]

(b) A mathematically similar cone has a total surface area of $1882.98\ \text{cm}^2$.

Find the radius of this cone.

..... cm [3]

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