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Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME

CENTRE NUMBER

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6860199788

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

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

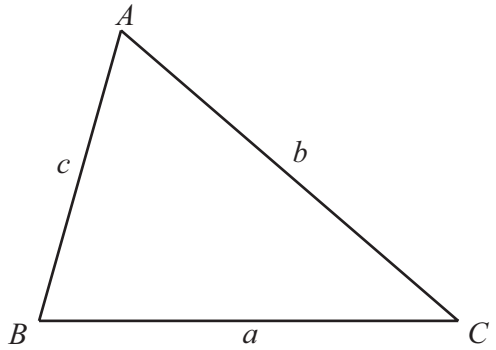
Volume, V, of cylinder of radius r, height h. $V = \pi r^2 h$

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,



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

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

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

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Calculators must **not** be used in this paper.

1 Complete the table.

Fraction		Decimal		Percentage
$\frac{3}{10}$	=	0.3	=	30
	=	0.09	=	
$\frac{7}{20}$	=		=	

[2]

2 Find the reciprocal of $1\frac{3}{5}$.

..... [2]

3 By writing each number correct to 1 significant figure, estimate the value of

$$\frac{\sqrt{8.76} \times 43.82}{0.592}.$$

..... [2]

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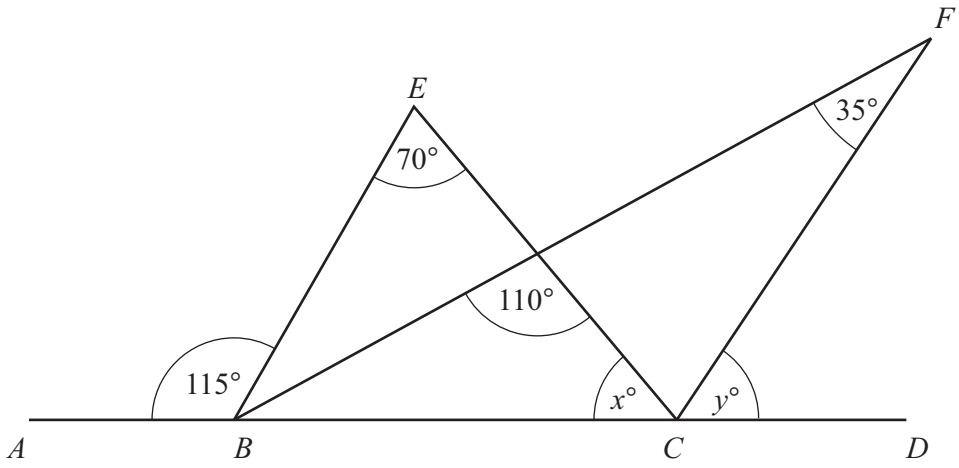

NOT TO SCALE

ABCD is a straight line.

(a) (i) Find the value of x.

..... [1]

(ii) Find the value of y.

..... [2]

(b) Give a reason why *BE* is **not** parallel to *CF*.

.....

..... [1]

5 $\mathbf{a} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -3 \\ 4 \end{pmatrix}$

Find the vector $2\mathbf{a} - 3\mathbf{b}$.

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [2]

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6 The types of vehicle travelling on a road were recorded.
The table shows the results for a sample of 200 vehicles.

Type of vehicle	Car	Van	Truck	Motorcycle
Number of vehicles	84	64	40	12
Relative frequency				

(a) Complete the table. [2]

(b) One day 5000 vehicles use the road.

Work out an estimate for the number of trucks that use the road that day.

..... [1]

7 A quadrilateral has exactly one line of symmetry.
It has no pairs of parallel sides.

Write down the mathematical name for this quadrilateral.

..... [1]

8 Rearrange each formula to make b the subject.

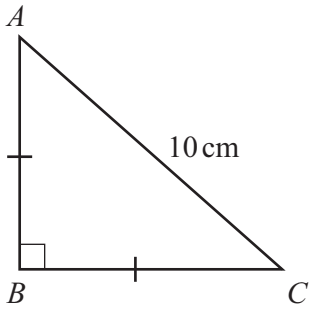
(a) $c = \sqrt{5ab}$

$b =$ ..... [2]

(b) $P = \dfrac{3a+2b}{5a-b}$

$b =$ ..... [3]

9



NOT TO SCALE

In the diagram, angle $ABC = 90^\circ$.
$AB = BC$ and $AC = 10$ cm.

Calculate the area of triangle ABC.

..... cm^2 [3]

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10 Samina has two pieces of string.
The lengths of the two pieces of string are in the ratio 5 : 3.

Samina cuts 4 cm off each piece of string.
The lengths of the two remaining pieces of string are in the ratio 2 : 1.

Find the original lengths of Samina's pieces of string.

..... cm

..... cm
[4]

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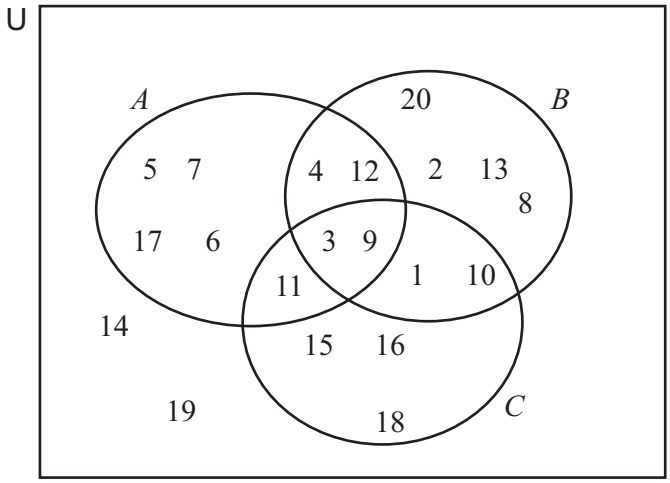
11 The numbers 1 to 20 are shown in the Venn diagram.



(a) List the elements of $A \cap B$.

..... [1]

(b) Find

(i) $n(A \cup C)$

..... [1]

(ii) $n[(A \cup B)' \cap C]$.

..... [1]

(c) Two of the 20 numbers are picked at random without replacement.

Find the probability that

(i) both numbers are in $(A \cup B)' \cap C$

..... [2]

(ii) one number is in A but not B and the other number is in B but not A.

..... [3]

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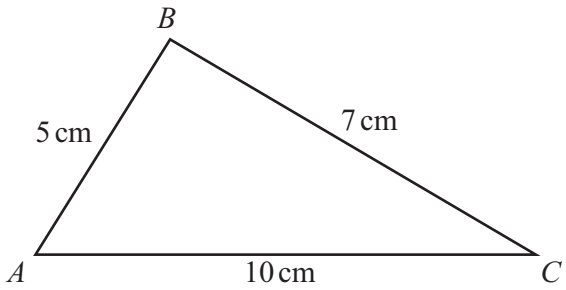

NOT TO SCALE

In triangle ABC, $AB = 5$ cm, $BC = 7$ cm and $AC = 10$ cm.

Show by calculation that angle ABC is obtuse.

[3]

13 **(a)** $\dfrac{2^5 \times 2^p}{2^3} = 2^6$

Find the value of p.

$p =$ ..... [1]

(b) Find the value of $64^{-\frac{2}{3}}$.

..... [2]

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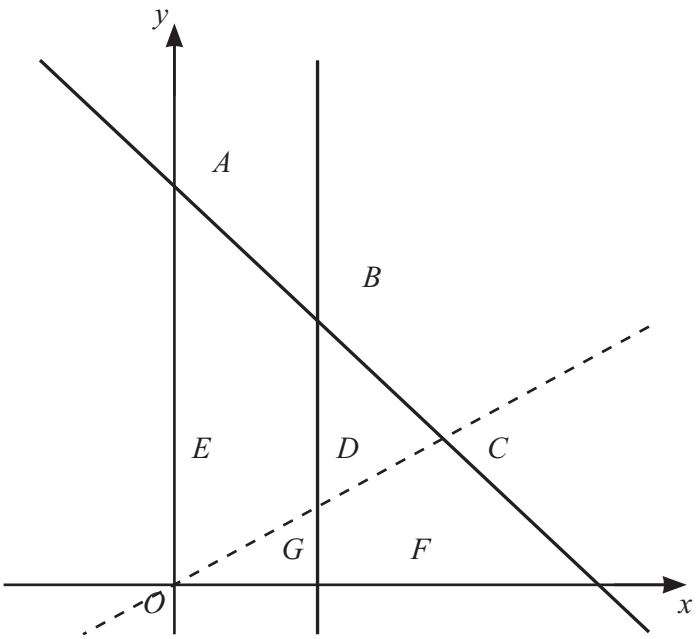

The lines with equations $x = 2$, $y = \frac{1}{2}x$ and $x + y = 5$ are shown on the diagram.

These lines divide the space into 7 different regions A, B, C, D, E, F and G.

Write down the inequalities which define

(a) region A

..... [1]

(b) region C

..... [1]

(c) region E.

..... [2]

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15 $f(x) = 3x - 1$ $g(x) = 3 - 2x$ $h(x) = x^2 - 2x + 3$

(a) Find $f(-3)$.

..... [1]

(b) Find $f^{-1}(10)$.

..... [2]

(c) Find and simplify $gh(x)$.

..... [2]

(d) Find $g^{-1}(x)$.

$g^{-1}(x) =$ ..... [2]

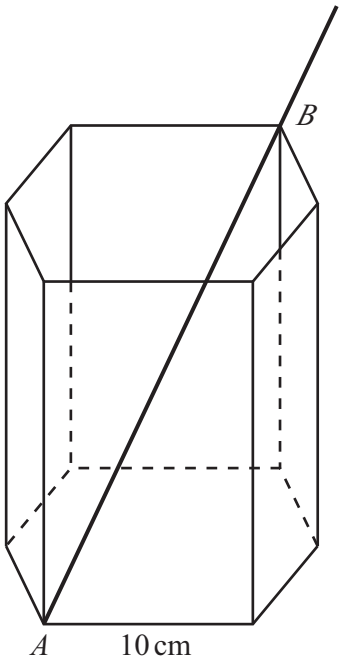
(e) Solve $h(x) = f(x)$.

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

16 **(a)** Show that the interior angle of a regular hexagon is 120°.

[1]

(b)



The diagram shows a container in the shape of a prism.
The cross-section of the prism is a regular hexagon with side length 10 cm.
The height of the prism is 15 cm.

A stick has one end at A and rests against B.
The stick makes an angle of x with the base.

Find tan x.

$\tan x =$ ..... [4]

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17 Write $(5-2\sqrt{3})^2$ in the form $a+b\sqrt{3}$.

..... [2]

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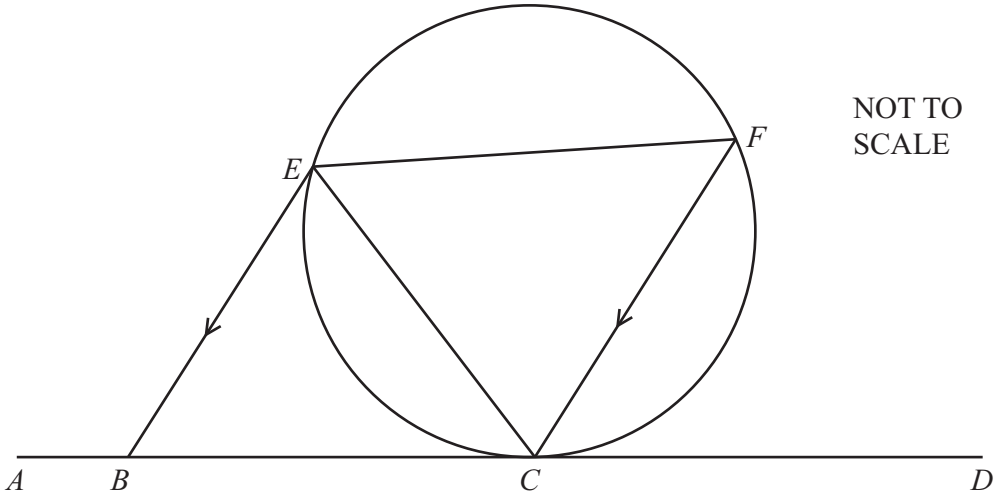

C, E and F are points on a circle.
$ABCD$ is a tangent to the circle at C.
EB is parallel to FC.

(a) Show that triangle CEB is similar to triangle FCE.

.....

.....

.....

.....

..... [3]

(b) $CB = 6\,\text{cm}$, $FE = 8\,\text{cm}$ and $EB = 5\,\text{cm}$.

Calculate CE.

..... cm [2]

(c) Find $\dfrac{\text{Area of triangle } CEB}{\text{Area of triangle } FCE}$.

..... [1]

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19 Simplify.

$$\frac{4a^2+4ab-15b^2}{2a^2+2ac-3ab-3bc}$$

..... [5]

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