Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

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8407547624

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

Paper 2 (Extended) **May/June 2019**

45 minutes

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
Do not use staples, paper clips, glue or correction fluid.
You may use an HB pencil for any diagrams or graphs.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** the questions.
CALCULATORS MUST NOT BE USED IN THIS PAPER.
All answers should be given in their simplest form.
You must show all the relevant working to gain full marks and you will be given marks for correct methods even if your answer is incorrect.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total number of marks for this paper is 40.

This document consists of **8** printed pages.

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[Turn over

Formula List

For the equation $ax^2 + bx + c = 0$ $\quad x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Curved surface area, A, of cylinder of radius r, height h. $\quad A = 2\pi rh$

Curved surface area, A, of cone of radius r, sloping edge l. $\quad A = \pi rl$

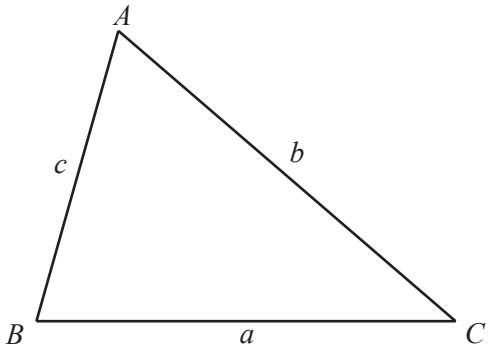
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

Volume, V, of pyramid, base area A, height h. $\quad V = \frac{1}{3}Ah$

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

Volume, V, of cone of radius r, height h. $\quad V = \frac{1}{3}\pi r^2 h$

Volume, V, of sphere of radius r. $\quad V = \frac{4}{3}\pi r^3$



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

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

$$\text{Area} = \frac{1}{2}bc\sin A$$

Answer **all** the questions.

1 Work out.

(a) $(0.3)^2$

..... [1]

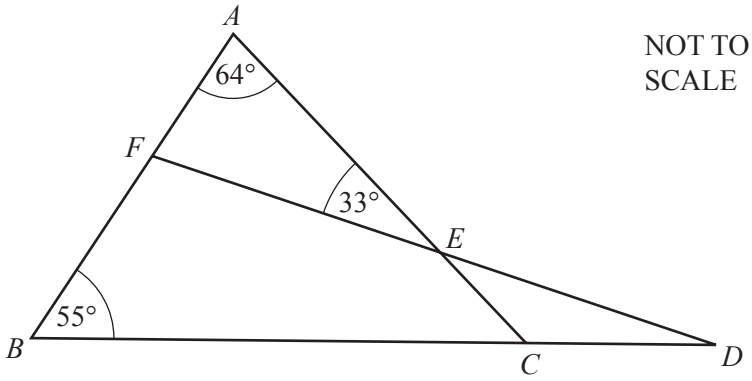
(b) $\frac{4}{9} - \frac{1}{6}$

..... [2]

2 Divide 360 in the ratio 7 : 2.

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

3



NOT TO SCALE

ABC is a triangle.
FED and *BCD* are straight lines.

Work out angle *EDC*.

Angle *EDC* = ... [2]

4 Expand and simplify.

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

..... [2]

5 Sacha drove 425 km from home at an average speed of 100 km/h.

(a) Calculate the time for the journey giving your answer in hours and minutes.

..... h ..... min [2]

(b) The return journey took 3 hours and 55 minutes.
She started at 21 56.

At what time did she arrive home?

..... [2]

6 **(a)** Write down the integer solutions to this inequality.

$$-2 \leqslant 2x < 8$$

..... [2]

(b) Solve $2 + 2x > 5x + 14$.

..... [2]

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7 Work out $(5.2 \times 10^{18}) - (2.4 \times 10^{17})$.
Give your answer in standard form.

..... [2]

8 A map is drawn to a scale of 1 cm to 5 km.

(a) On the map, the distance between two towns is 4.8 cm.

Find the actual distance between the towns.

.....km [1]

(b) An island has an area of 75 km^2.

Find the area of the island on the map.

.....cm^2 [2]

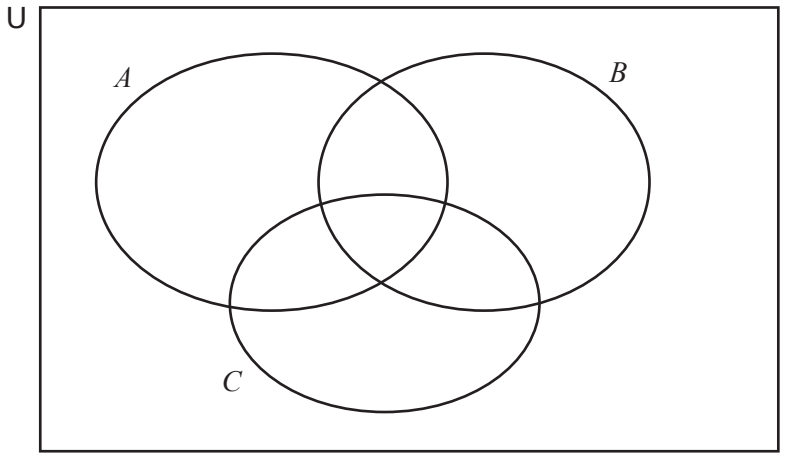
9 Factorise completely.

$2x^2 - 18$

..... [2]

10 U = {integers from 1 to 12}
A = {1, 2, 4, 5, 12}
B = {2, 3, 4, 6, 10}
C = {1, 2, 8, 9, 10}

(a) Complete the Venn Diagram.



[2]

(b) Find $n(A \cap (B \cup C)')$.

..... [1]

11 The point A has co-ordinates (3, 8).
The point B has co-ordinates (7, 0).

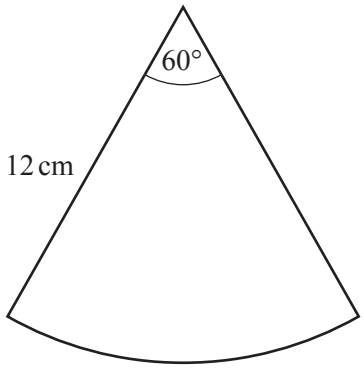
(a) Find the co-ordinates of the midpoint of AB.

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

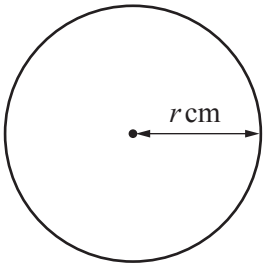
(b) Find the equation of the perpendicular bisector of AB.
Write your answer in the form $y = mx + c$.

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

12



NOT TO SCALE



The sector and the circle have the same area.
The angle of the sector is 60°.
The radius of the sector is 12 cm and the radius of the circle is r cm.

Work out the value of r.
Give your answer as a surd in its simplest form.

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

13 Rearrange this formula to make b the subject.

$$A = \frac{(a+b)}{2}h$$

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

Question 14 is printed on the next page.

14 **(a)** Find the value of $\log_{25} 5$.

..... [1]

(b) Simplify $\log 63 - 2\log 3$.

..... [2]

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