Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

7739365234

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

Paper 2 (Extended) **October/November 2015**

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.

CAMBRIDGE International Examinations

Formula List

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

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. $A = \pi rl$

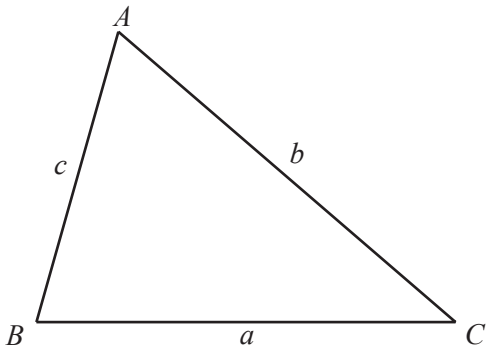
Curved surface area, A, of sphere of radius r. $A = 4\pi r^2$

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. $V = \frac{4}{3}\pi r^3$



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

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

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

Answer **all** the questions.

1 Work out $\frac{7}{12} - \frac{1}{3}$.

Give your answer in its lowest terms.

Answer ..... [2]

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2 Change 12 metres per second into kilometres per hour.

Answer ..... km/h [2]

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3 **(a)** Write 0.000048 in standard form.

Answer(a) ..... [1]

(b) Work out $(2 \times 10^8) \times (6 \times 10^7)$, giving your answer in standard form.

Answer(b) ..... [2]

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4 The price of a computer is reduced by 5%.
The actual reduction is \$17.

Find the original price of the computer.

Answer \$ ..... [2]

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5 Simplify $\sqrt{75} - \sqrt{27}$.

Answer ..... [2]

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6 $v = u + at$

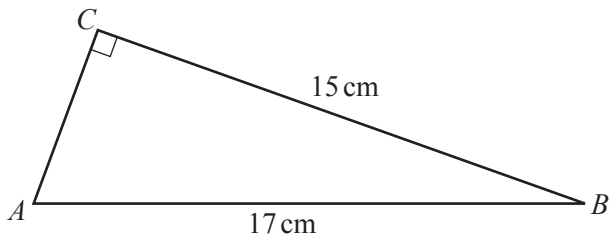
(a) Find the value of v when $u = 12$, $a = -2$ and $t = 5$.

Answer(a) ..... [1]

(b) Rearrange the formula to make a the subject.

Answer(b) $a =$ ..... [2]

7

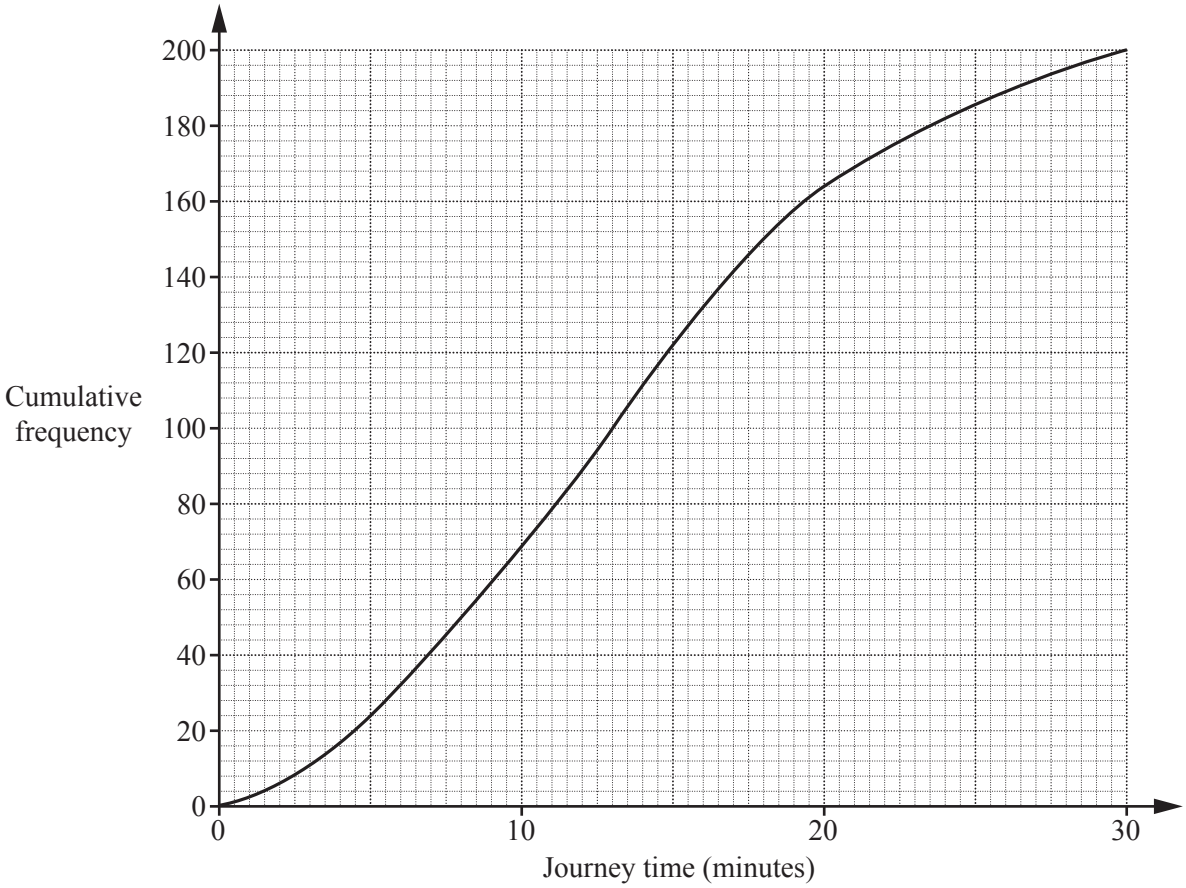


NOT TO SCALE

Work out the length of AC.

Answer ..... cm [3]

8



The cumulative frequency curve shows information about the journey times to school of 200 students.

(a) Find the median.

Answer(a) ..... min [1]

(b) Find the number of students with a journey time of more than 20 minutes.

Answer(b) ..... [2]

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9 Find the value of each of the following.

(a) $(0.2)^3$

Answer(a) ..... [1]

(b) $\left(\frac{1}{2}\right)^{-1}$

Answer(b) ..... [1]

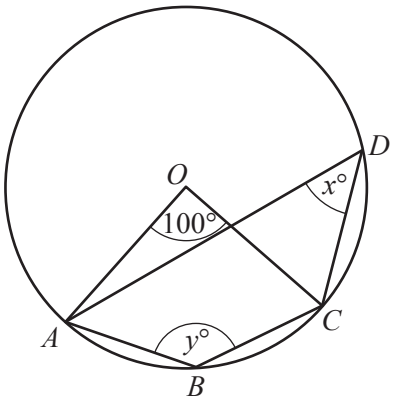
(c) $64^{\frac{2}{3}}$

Answer(c) ..... [1]

(d) $\log_9 3$

Answer(d) ..... [1]

10



NOT TO SCALE

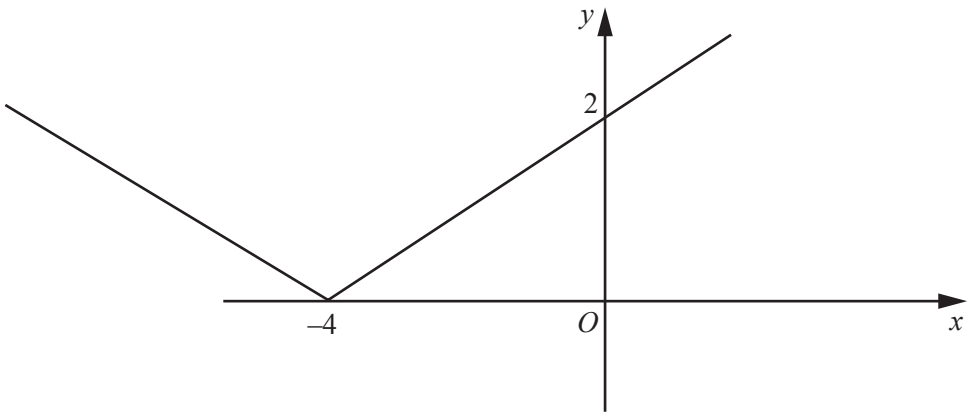
A, B, C and D lie on a circle, centre O.

Find the value of x and the value of y.

Answer $x =$ .....

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

11



NOT TO SCALE

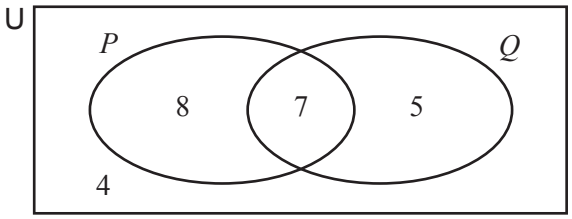
The diagram shows the graph of $y = |px + q|$.

Find the value of p and the value of q.

Answer $p =$ .....

$q =$ ..... [3]

12



The Venn diagram shows the **number of elements** in each subset.

(a) Find $\mathrm{n}(P \cup Q)'$.

Answer(a) ..... [1]

(b) Shade the region $P \cap Q'$. [1]

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13 A is the point $(-4, 4)$ and B is the point $(4, 10)$.

Find the equation of the perpendicular bisector of AB.

Answer ..... [4]

Questions 14 and 15 are printed on the next page.

14 y varies inversely as $\sqrt{x}$.
When $x = 9$, $y = 3$.

(a) Find y in terms of x.

Answer(a) $y =$ ..... [2]

(b) Find the value of y when $x = 81$.

Answer(b) ..... [1]

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15 The graph of $y = a\cos(bx)^\circ$ has a maximum point at (360, 3) and a minimum point at (450, –3).

Find the value of a and the value of b.

Answer $a =$ .....

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