Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

0139225842

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

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.

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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. $\quad A = \pi rl$

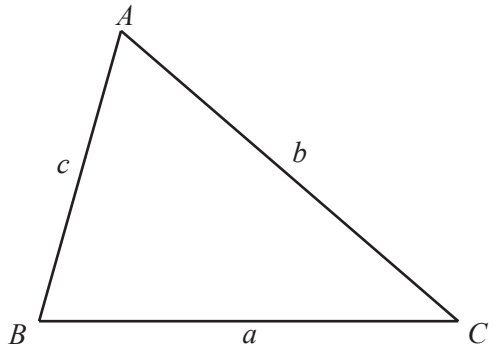
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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.

$(-2)^3$

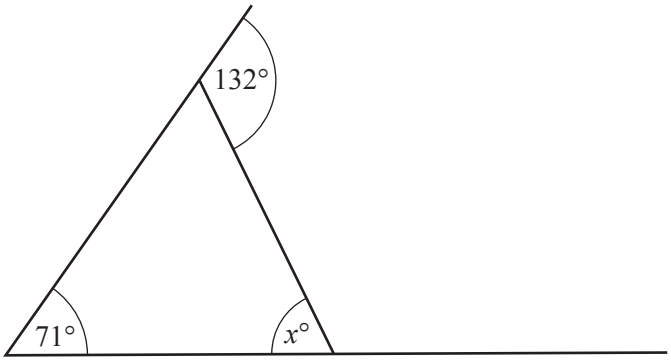
..... [1]

2 $f(x) = 1 - 3x$

Find the value of $f(-1)$.

..... [1]

3



NOT TO SCALE

Find the value of x.

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

4 Expand the brackets and simplify.

$2(3x - 1) + 3(1 - 2x)$

..... [2]

5 A quadrilateral has

- two pairs of parallel sides
- all sides the same length
- no right angles.

Write down the mathematical name of this quadrilateral.

..... [1]

6

16 10 11 15 10 12 14 13 17 10 15

Find the median of these eleven numbers.

..... [1]

7 Work out.

$$5\frac{2}{5} \times 1\frac{2}{3}$$

..... [3]

8 Work out the following.
Give each answer in standard form.

(a) $(1 \times 10^{1}) + (2 \times 10^{-2})$

..... [2]

(b) $(1 \times 10^{1}) \div (2 \times 10^{-2})$

..... [2]

9 A bag contains 2 blue balls, 3 red balls and 5 green balls only.
John takes a ball out of the bag at random.
He records the colour and puts the ball back in the bag.
Flavia takes a ball out of the bag at random and records the colour.

Find the probability that both balls are red.

..... [2]

10 $\mathbf{a} = \begin{pmatrix} 6 \\ 8 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 2 \\ -8 \end{pmatrix}$

(a) Find $\mathbf{a} - 3\mathbf{b}$.

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

(b) Work out $|\mathbf{a}|$.

..... [2]

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11 A travel agent has the following exchange rates.

£1 = $1.25

£1 = €1.20

(a) Change £200 into dollars ($).

$ ..... [1]

(b) Change $100 into euros (€).

€ ..... [2]

12 The point A has co-ordinates (1, 3) and the point B has co-ordinates (4, 1).
B is the midpoint of the line AC.

Find the co-ordinates of the point C.

(..... , ...) [2]

13 Make a the subject of $s = ut + \frac{1}{2}at^2$.

$a =$ ..... [3]

14 Factorise completely.

$$6ac - 9bc - 8ad + 12bd$$

..... [2]

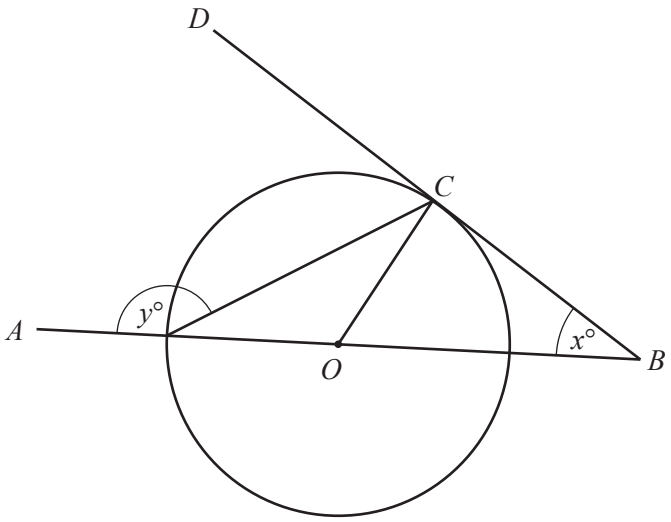
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15 Erica walks 13 km in 2 hours.
She then runs at a speed of 12 km/h for 45 minutes.

Find her average speed in km/h for the whole journey.

..... km/h [3]

16



NOT TO SCALE

The diagram shows a circle, centre O.
AOB is a straight line.
BCD is a tangent to the circle at C.

Find y in terms of x.

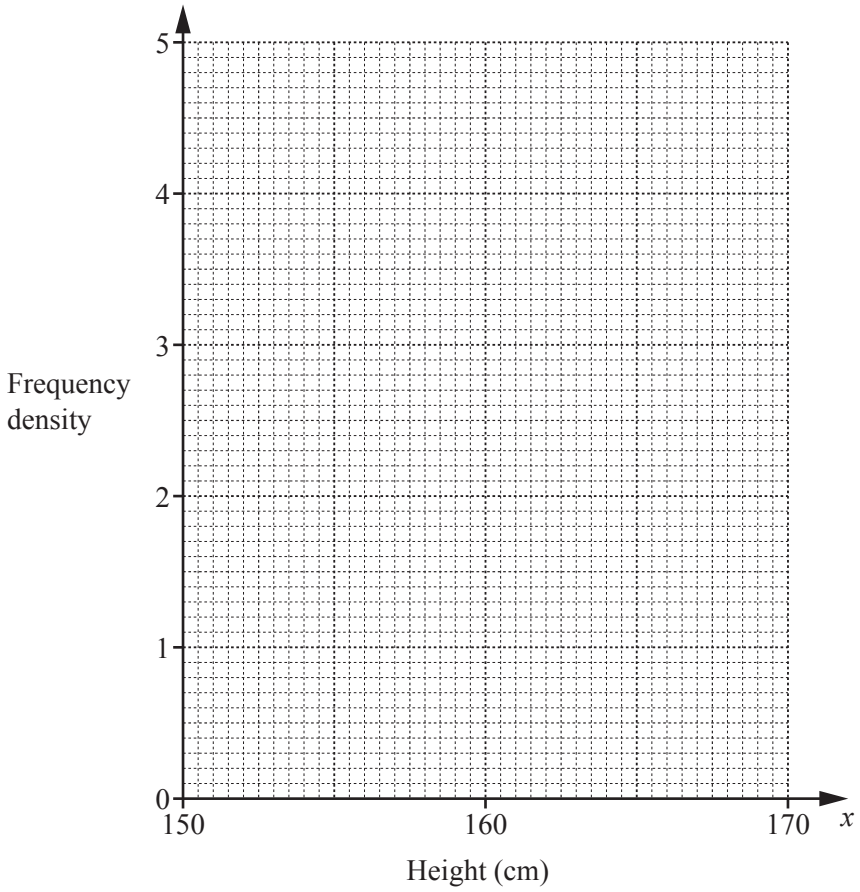
$y =$ ..... [3]

Question 17 is printed on the next page.

17 The table shows the heights, x cm, of some students at a school.

Height (x cm)	Frequency
$150 < x \leqslant 160$	8
$160 < x \leqslant 165$	20
$165 < x \leqslant 170$	24

On the grid below, draw a histogram to show this information.



[3]

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