Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

Paper 2 (Extended) **May/June 2018**

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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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. $\quad A = \pi rl$

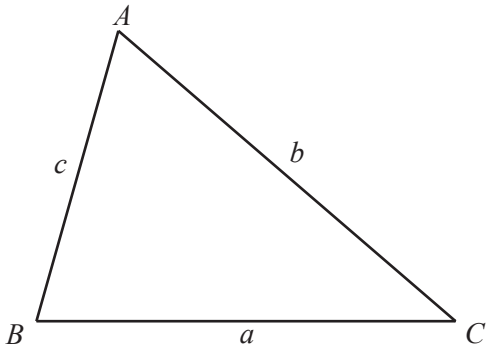
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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



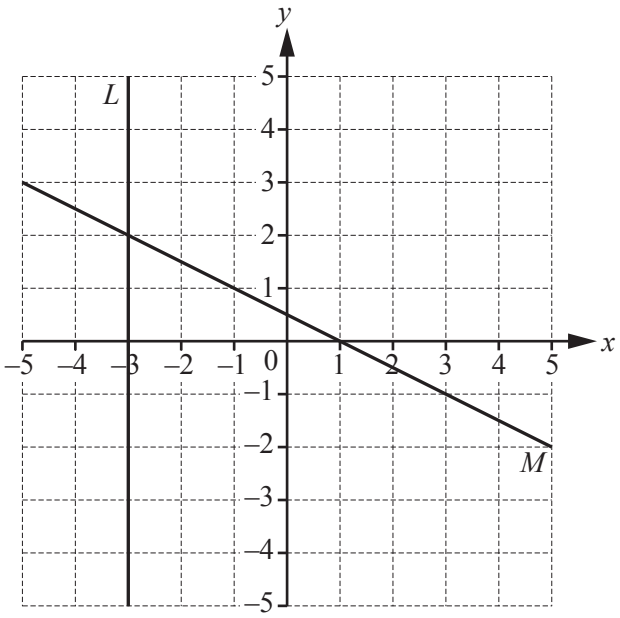
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

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

Answer **all** the questions.

1



(a) Write down the equation of line L.

..... [1]

(b) Write down the co-ordinates of the point of intersection of line L and line M.

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

(c) Find the gradient of line M.

..... [2]

2 Find the highest common factor (HCF) of 96 and 60.

..... [1]

3 Expand and simplify $5(2x+3y)-3(4y-2x)$.

..... [2]

4 Write down the value of 17^0.

..... [1]

5 $v = \dfrac{uf}{u - f}$

Find v when $u = 30$ and $f = 10$.

$v =$ ..... [2]

6 **(a)** Find a fraction, n, that satisfies this inequality.

$$\frac{5}{7} < n < \frac{6}{7}$$

$n =$ ..... [1]

(b) Write down an irrational number, m, that satisfies this inequality.

$$4 < m < 7$$

$m =$ ..... [1]

7 Q is the point (3, 7) and $\overrightarrow{PQ} = \begin{pmatrix} -6 \\ 3 \end{pmatrix}$.

(a) Find the co-ordinates of P.

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

(b) Find $\left|\overrightarrow{PQ}\right|$.
Give your answer in its simplest surd form.

..... [3]

8 Work out $(5.6 \times 10^{-7}) - (7.8 \times 10^{-8})$.
Give your answer in standard form.

..... [2]

9 Kim has a piece of rope 18 metres long.
He cuts the rope into two pieces.
The lengths of the pieces are in the ratio 1 : 5.

Calculate the length of each piece.

..... m

..... m [2]

10 Solve $3 - x \geqslant 2x + 15$.

..... [2]

11 Jamil has a biased 6-sided die.
He rolls it 350 times.
The results are shown in the table.

Number on die	1	2	3	4	5	6
Frequency	20	50	72	68	56	84

(a) Find the relative frequency of getting a 2 with Jamil's die.

..... [1]

(b) Explain why your answer to **part (a)** is a good estimate of the probability of getting a 2.

.....[1]

(c) Estimate the number of times Jamil will get a 2 if he rolls the die 1400 times.

..... [1]

12 **(a)** On the grid, sketch the graph of $y = \sin x°$ for $0 \leqslant x \leqslant 360$.

[2]

(b) The point $(a, 0.5)$ is on the graph of $y = \sin x°$.

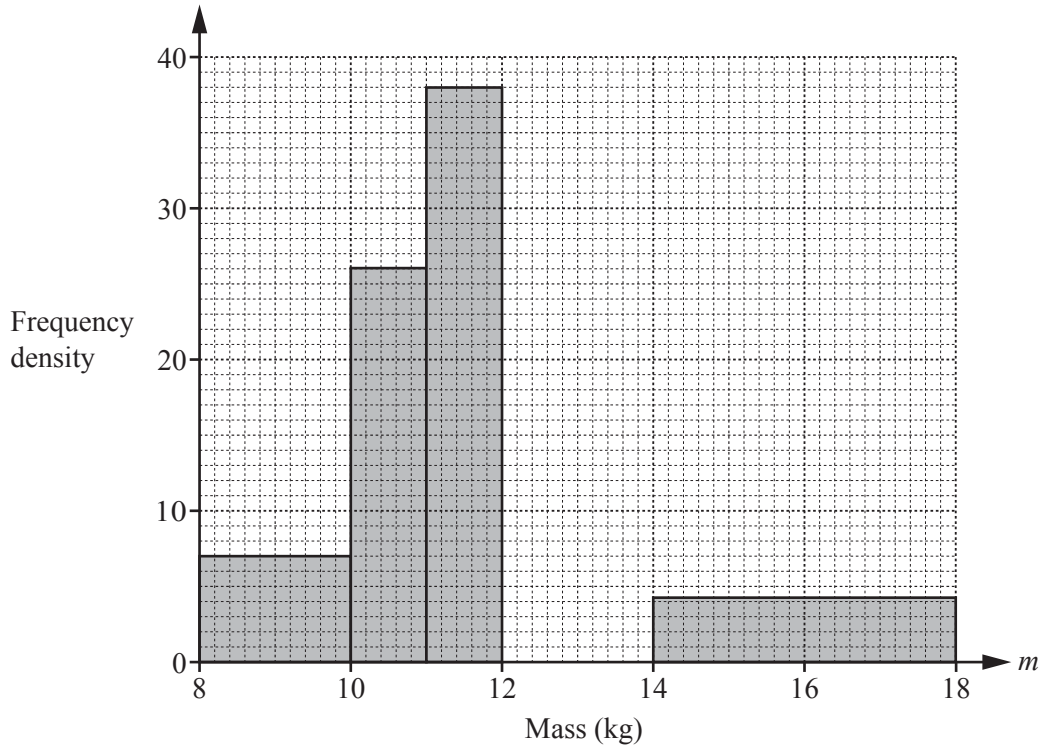
Find the two possible values of a.

$a =$ ..... or $a =$ ..... [2]

13 The masses, m kg, of some watermelons are measured.
The results are shown in the table.

Mass (m kg)	$8 < m \leqslant 10$	$10 < m \leqslant 11$	$11 < m \leqslant 12$	$12 < m \leqslant 14$	$14 < m \leqslant 18$
Frequency	p	26	38	24	17

Part of the histogram to show this information is shown below.



(a) Complete the histogram. [2]

(b) Find the value of p.

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

Questions 14 and 15 are printed on the next page.

14 Rearrange this formula to make x the subject.

$$y = \frac{ax}{bx + c}$$

$x =$ ..... [3]

15 **(a)** Solve $3\log 2 - 2\log 5 = \log x$.

$x =$ ..... [3]

(b) Solve $\log_y 4 = \frac{1}{3}$.

$y =$ ..... [1]