Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

4755091919

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

Paper 2 (Extended) **October/November 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. $\quad A = \pi rl$

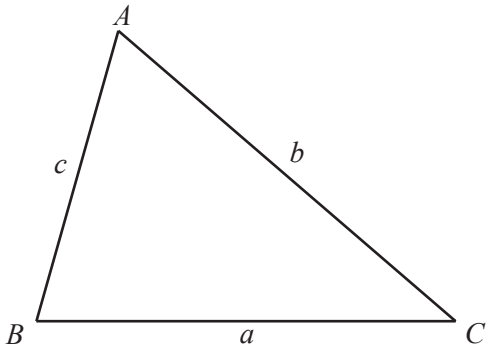
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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) $(-4)^2$

..... [1]

(b) $(0.3)^2$

..... [1]

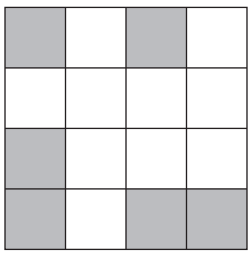
2 **(a)** Write down a prime number between 80 and 90.

..... [1]

(b) Write down a triangle number between 30 and 50.

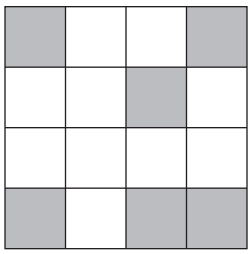
..... [1]

3 **(a)** Shade **two** squares so that this shape has exactly one line of symmetry.



[1]

(b) Shade **two** squares so that this shape has rotational symmetry of order 2.



[1]

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4 A cat eats $1\frac{2}{3}$ tins of food each day.

How many tins are needed for one week?

..... [2]

5 Factorise.

(a) $x^2 - 1$

..... [1]

(b) $3x^2 - 6ax - axy + 2a^2y$

..... [2]

6 Triangle ABC is isosceles and angle $A = 40°$.

Find the three possible values for angle B.

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

7 The mean of 10 numbers is 15.
When an 11th number is included, the mean is 16.

Find the 11th number.

..... [2]

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8 200 students record the method they use most to travel to school.
The results are shown in the table.

Method of travel	Bus	Car	Walk	Cycle
Number of students	40	98	37	25

(a) Find, as a fraction, the relative frequency of a student travelling to school by bus.

..... [1]

(b) Give a reason why it is reasonable to use your answer to **part (a)** to estimate the probability that a student travels to school by bus.

..... [1]

(c) The school has 1800 students.

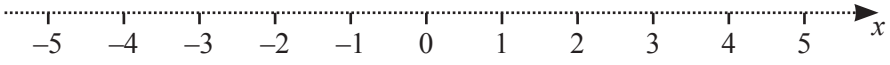
Estimate the number of students who travel to school by bus.

..... [1]

9 **(a)** Solve $3x - 2 > 7x + 6$.

..... [2]

(b) Show your solution to **part (a)** on this number line.



[1]

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10 Rearrange this formula to make a the subject.

$$y = \frac{3a-2}{a-1}$$

..... [3]

11 Expand and simplify.

$$(3\sqrt{2}+7)^2$$

..... [3]

12 The equation of the line L is $y = 3x-2$.

(a) Find the co-ordinates of the point A, where the line L crosses the y-axis.

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

(b) Find the co-ordinates of the point B, where the line L crosses the x-axis.

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

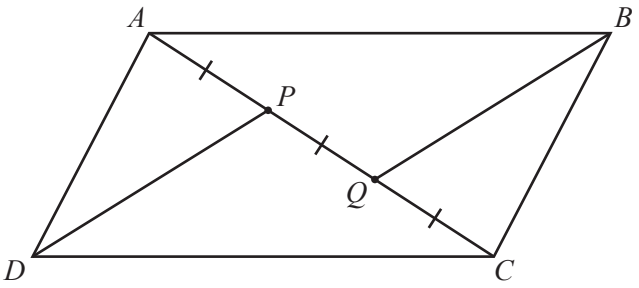
(c) The line M passes through the point A and is perpendicular to the line L.

Find the equation of the line M.

..... [2]

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13



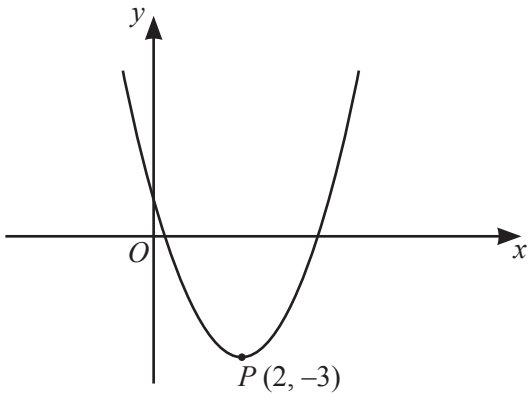
NOT TO SCALE

ABCD is a parallelogram.
$AP = PQ = QC$.

Show that triangles *BQC* and *DPA* are congruent.

Statement	Reason
.....	.....
.....	.....
.....	.....
.....	..... [3]

14



NOT TO SCALE

The diagram shows a sketch of the graph $y = x^2 + bx + c$.
The minimum point is at $P(2, -3)$.

Find the value of *b* and the value of *c*.

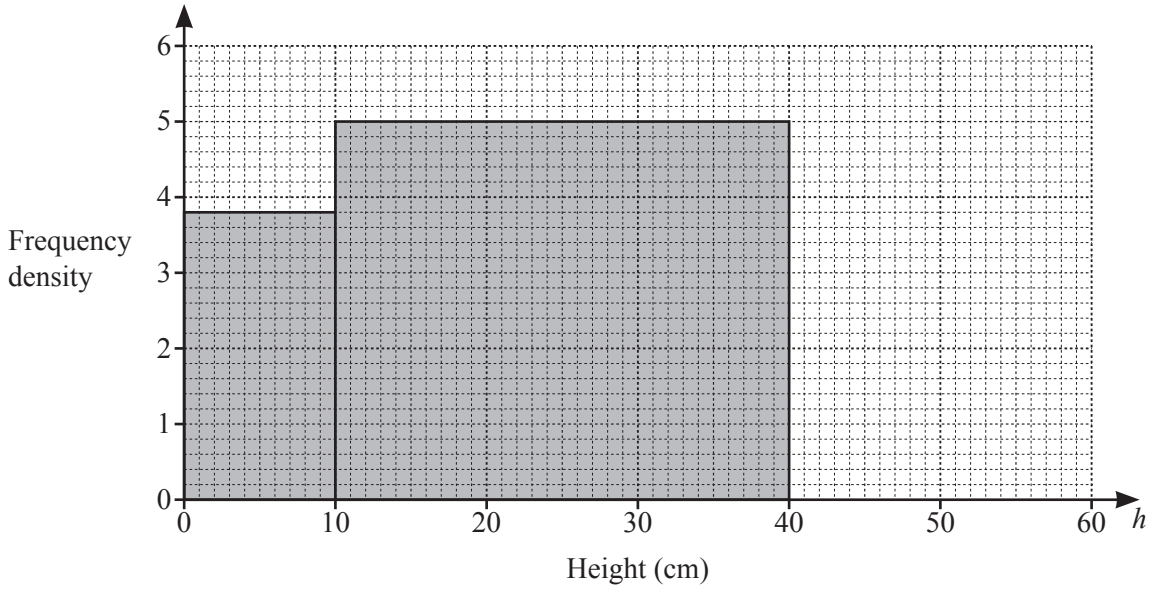
b = ... *c* = ... [3]

Question 15 is printed on the next page.

15 The table shows the height, h cm, of some plants.

Height (h cm)	$0 < h \leqslant 10$	$10 < h \leqslant 40$	$40 < h \leqslant 60$
Frequency	p	q	44

(a) Complete the histogram to show this information.



[1]

(b) Find the value of p and the value of q.

$p =$ .....

$q =$ ..... [2]

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