Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

5138626427

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/22**

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.

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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. $\quad A = \pi rl$

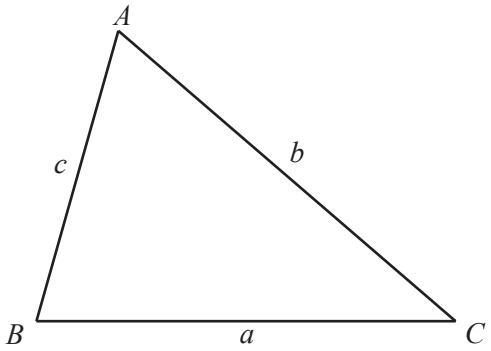
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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)** Work out $16 - 8 \div 2 + 2 \times 4$.

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

(b) Work out $(8 \times 10^{-4}) \times (2 \times 10^{-3})$, giving your answer in standard form.

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

---

2 Solve.

(a) $2x - 3(1 - 4x) = 2(11 - 3x)$

Answer(a) $x =$ ..... [3]

(b) $|4x - 3| = 11$

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

---

3 x varies as the square of y.
When $y = 4$, $x = 32$.

Find x when $y = 5$.

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

---

4 Two fair dice, each numbered 1, 2, 3, 4, 5, 6, are rolled and the **total** score is recorded.

Find the probability that the total score is

(a) 12,

Answer(a) ..... [2]

(b) 13,

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

(c) 7.

Answer(c) ..... [2]

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5 $\mathbf{a} = \begin{pmatrix} 5 \\ -12 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}$

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

Answer(a) $\begin{pmatrix} \\ \end{pmatrix}$ [2]

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

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

---

6 Factorise.

(a) $8ax - by + 2ay - 4bx$

Answer(a) ..... [2]

(b) $3x^2 - 5x - 12$

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

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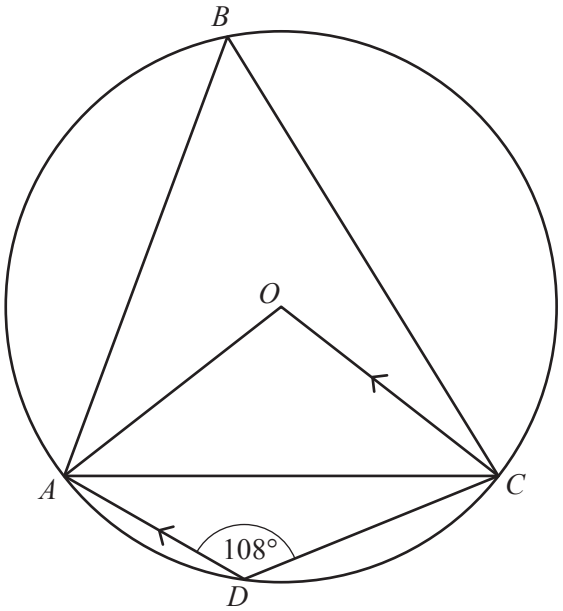
7 **(a)** Find the value of 6^0.

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

(b) Write 5^{-2} as a fraction.

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

8



NOT TO SCALE

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

AD is parallel to OC and angle $ADC = 108°$.

Find

(a) angle ABC,

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

(b) angle AOC,

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

(c) angle OCA,

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

(d) angle DAC.

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

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9 In triangle ABC, $AB = \sqrt{48}$ cm, $AC = 8$ cm and angle $ABC = 90°$.

Find

(a) BC,

Answer(a) ..... cm [3]

(b) angle BAC.

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

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10 The graph of $y = (x - h)^2 + k$ has a vertex at $(2, -3)$.

Find the value of h and the value of k.

Answer $h =$ .....

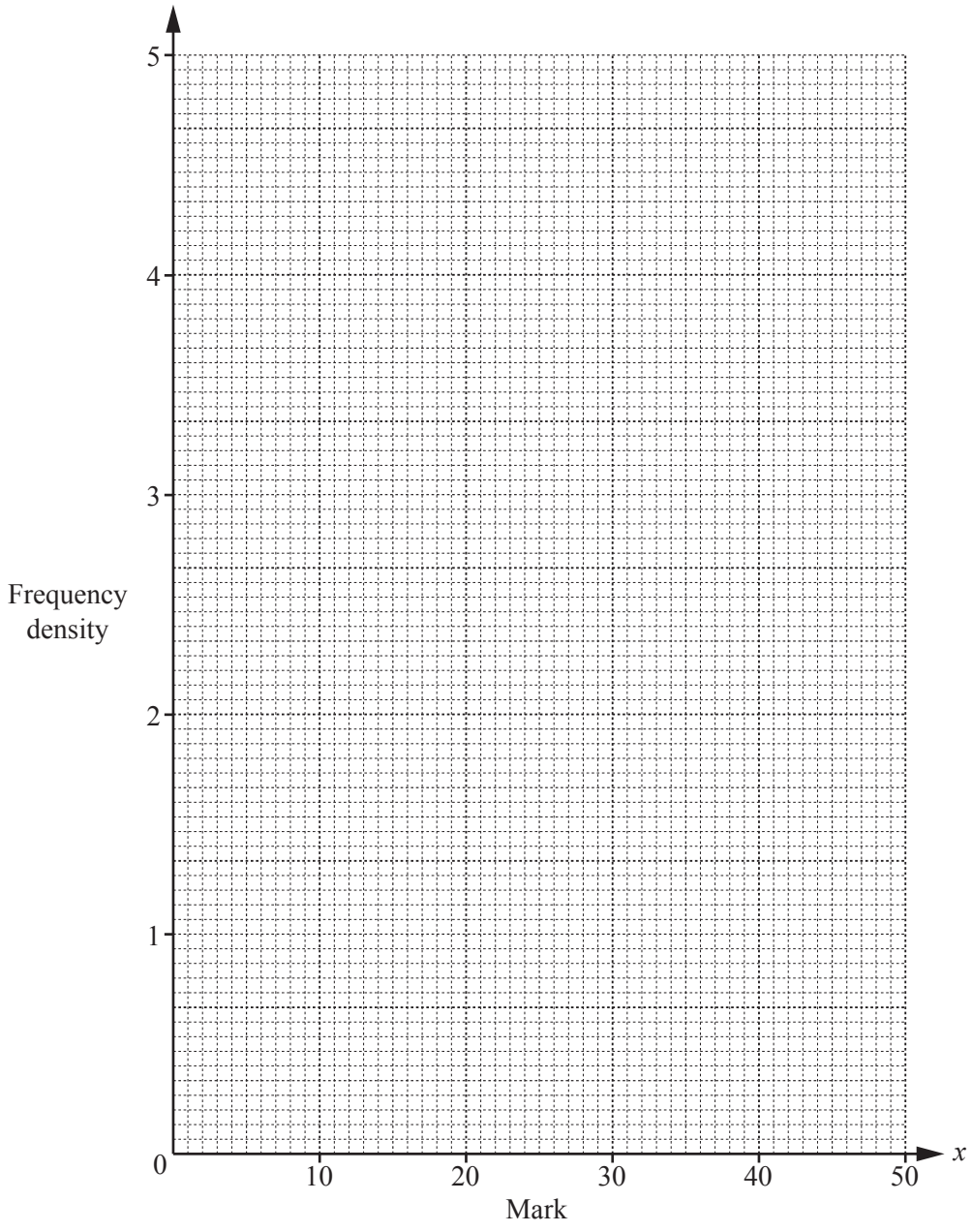
$k =$ ..... [2]

Question 11 is printed on the next page.

11 The table shows the marks of 70 students in an examination.

Mark (x)	Frequency
$0 < x \leqslant 10$	8
$10 < x \leqslant 15$	16
$15 < x \leqslant 20$	20
$20 < x \leqslant 30$	12
$30 < x \leqslant 50$	14

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



[3]

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