CANDIDATE
NAME

CENTRE
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NUMBER

CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/01

Paper 1 (Core)

October/November 2011

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, highlighters, glue or correction fluid.
You may use a 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.

**For Examiner's Use**

This document consists of **8** printed pages.

Formula List

Area, A, of triangle, base b, height h. $\qquad A = \dfrac{1}{2}bh$

Area, A, of circle, radius r. $\qquad A = \pi r^2$

Circumference, C, of circle, radius r. $\qquad C = 2\pi r$

Curved surface area, A, of cylinder of radius r, height h. $\qquad A = 2\pi rh$

Curved surface area, A, of cone of radius r, sloping edge l. $\qquad A = \pi rl$

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

Volume, V, of prism, cross-sectional area A, length l. $\qquad V = Al$

Volume, V, of pyramid, base area A, height h. $\qquad V = \dfrac{1}{3}Ah$

Volume, V, of cylinder of radius r, height h. $\qquad V = \pi r^2 h$

Volume, V, of cone of radius r, height h. $\qquad V = \dfrac{1}{3}\pi r^2 h$

Volume, V, of sphere of radius r. $\qquad V = \dfrac{4}{3}\pi r^3$

Answer **all** the questions.

1 Write down the next term in the following sequence.

$$0, \quad 3, \quad 8, \quad 15, \quad 24, \quad ...$$

Answer .... [1]

2 A football stadium holds 62 700 spectators.

(a) Write 62 700 in standard form.

Answer(a) .... [1]

(b) Write 62 700 correct to the nearest thousand.

Answer(b) .... [1]

3 (a) Complete the list of factors of 45.

Answer(a) 1, ... , ... , ... , ... , 45 [2]

(b) Find the highest common factor of 36 and 45.

Answer(b) .... [1]

4 (a) Work out.

(i) 2^3

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

(ii) $2(3 + 4) - 5$

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

(b) $\sqrt{x} = 4$

Find the value of *x*.

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

5
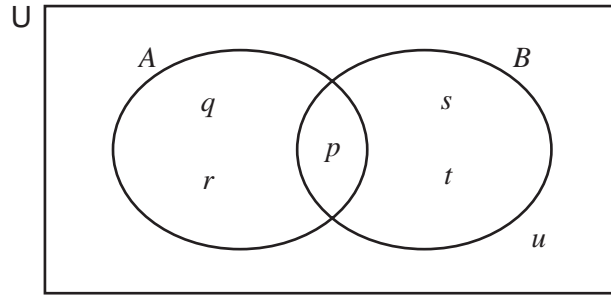
The elements p, q, r, s, t and u are shown in the Venn diagram.

Complete the following.

(a) $A \cap B = \{$ .... $\}$ [1]

(b) $A' = \{$ .... $\}$ [1]

(c) $\mathrm{n}\,(\,A \cup B\,) =$ .... [1]

6 The graph of $y = \dfrac{8}{x}$ is drawn below.
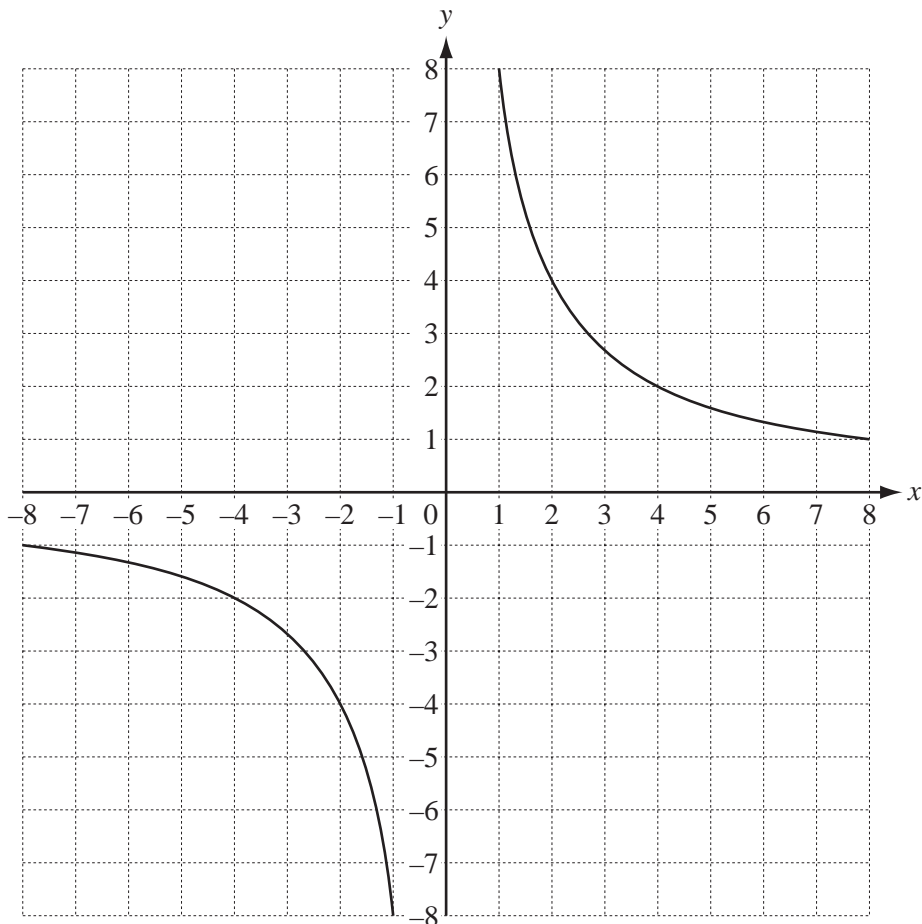
On the grid, draw the two lines of symmetry of the graph. [2]

7 The stem and leaf diagram shows the heights of 14 plants.

```
0 | 7 8 8 9
1 | 1 3 6 7 9
2 | 0 1 2
3 | 2 4
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Key 1 | 3 means 13 cm

(a) Find the median.

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

(b) Find the interquartile range.

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

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8 Simplify.

(a) $\dfrac{2x}{3} - \dfrac{x}{4}$

Answer(a) ....   [2]

(b) $2c^2 \times 3c^3$

Answer(b) ....   [2]

(c) $\dfrac{6x^5}{2x^2}$

Answer(c) ....   [2]

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9 **(a)** Find the sum of the interior angles of a hexagon.

Answer(a) .... [1]

(b) A hexagon has 4 angles of 100° each and 2 angles of $x°$ each.
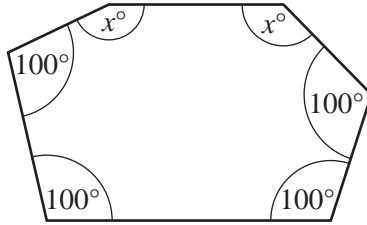
NOT TO SCALE

Find the value of x.

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

10
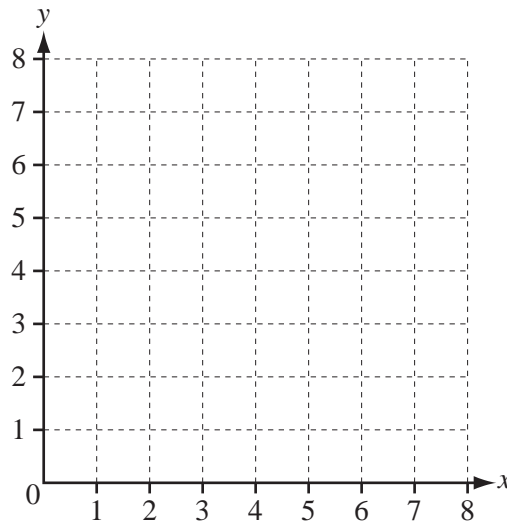
$\overrightarrow{OA} = \begin{pmatrix} 6 \\ 2 \end{pmatrix}$ and $\overrightarrow{OC} = \begin{pmatrix} 1 \\ 4 \end{pmatrix}$ where O is the point $(0, 0)$.

(a) On the grid, plot the points A and C. [2]

(b) $OABC$ is a parallelogram.

(i) On the grid, draw this parallelogram. [1]

(ii) Write down the co-ordinates of the point B.

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

11   A straight line joins the points $A(1, 2)$ and $B(3, 8)$.

   (a) Find the co-ordinates of the midpoint of the line AB.

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

   (b) Find the gradient of the line AB.

Answer(b) ....   [2]

   (c) Find the equation of the line AB.

Answer(c) ....   [3]

Question 12 is printed on the next page.

12
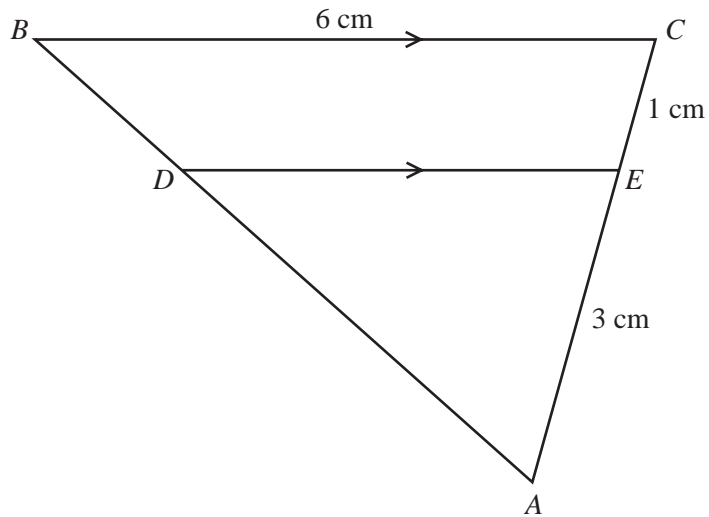
In the diagram *DE* is parallel to *BC*.
AE = 3 cm, *EC* = 1 cm and *BC* = 6 cm.

Find the length of *DE*.

Answer .... cm   [2]