CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

CAMBRIDGE INTERNATIONAL MATHEMATICS 0607/01

Paper 1 (Core) **May/June 2010**

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.

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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 value of

(a) 2^3,

Answer(a) .... [1]

(b) 2^0.

Answer(b) .... [1]

2 Simplify $\dfrac{4+8}{4 \times 8}$.

Give your answer as a fraction in its lowest terms.

Answer .... [2]

3 $p = 2 \times 10^5$

Find the value of $6p$, giving your answer in standard form.

Answer .... [2]

4 The heights of 20 buildings are measured.

(a) State whether the data is discrete or continuous.

Answer(a) .... [1]

(b) The heights, correct to the nearest metre, are shown below.

12	10	15	18	8	9	23	26	14	21
11	16	20	21	22	13	22	25	17	19

Draw an **ordered** stem-and-leaf diagram to show this information.

[3]

(c) Work out the range of the heights.

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

5 **(a)** Simplify $5p^2 \times 3p^3$.

Answer(a) .... [2]

(b) Factorise **completely** $2x^2 + 6xy$.

Answer(b) .... [2]

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6 **(a)** Plot the points $A(-1, 5)$ and $B(3, 7)$ on the grid.
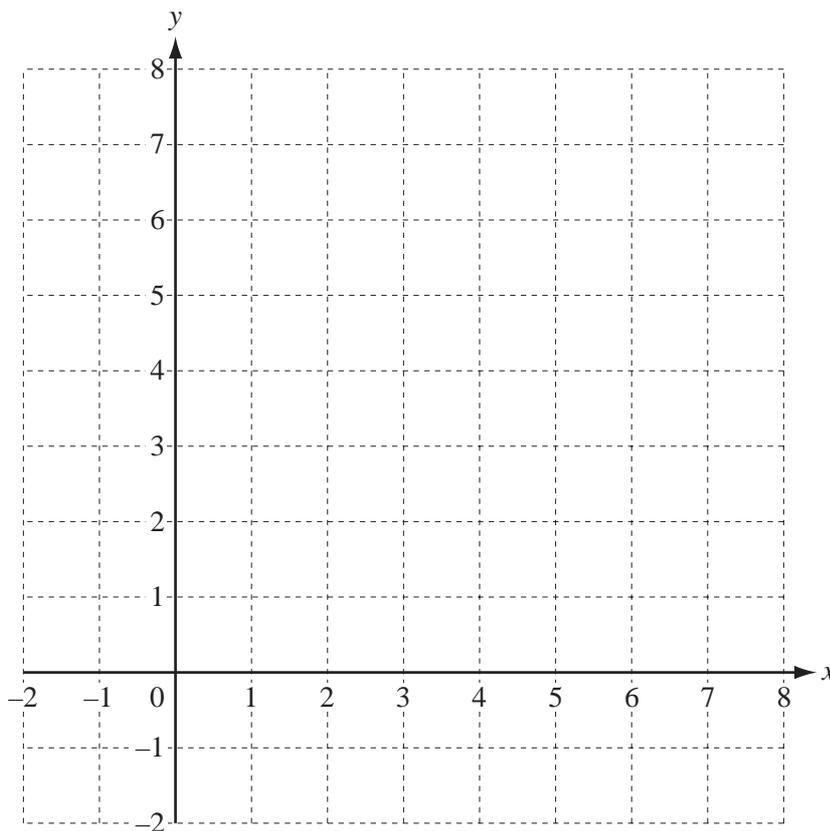
[2]

(b) Write down the coordinates of the midpoint of the line joining A and B.

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

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7 All measurements in this question are in centimetres.
Three rectangles are placed together to form the shape below.
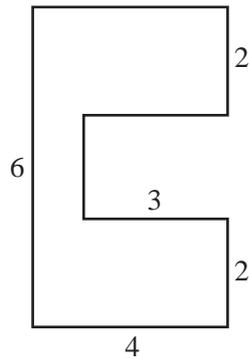
NOT TO SCALE

(a) Calculate the area of this shape.

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

(b) The shape is projected onto a screen and the enlargement is shown below.
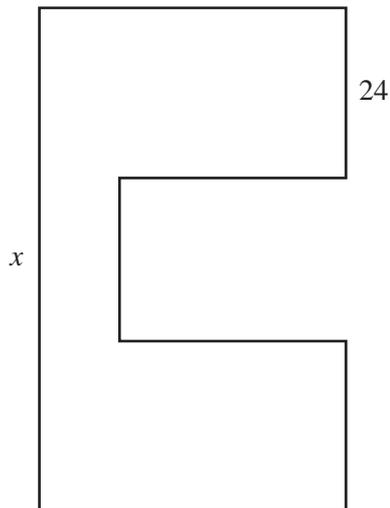
NOT TO SCALE

Find the value of *x*.

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

8 The probability that it is windy is 0.3 .

(a) Write down the probability that it is not windy.

Answer(a) .... [1]

(b) Anita plans to go sailing.
If it is windy, the probability that she will go sailing is 0.8 .
If it is not windy, the probability that she will go sailing is 0.1 .

(i) Complete the tree diagram.

```
                                      0.8        sailing
                              windy <
                   0.3                           not sailing
                                      ..........

                                      0.1        sailing
                   ..........  not windy <
                                                 not sailing
                                      ..........
```
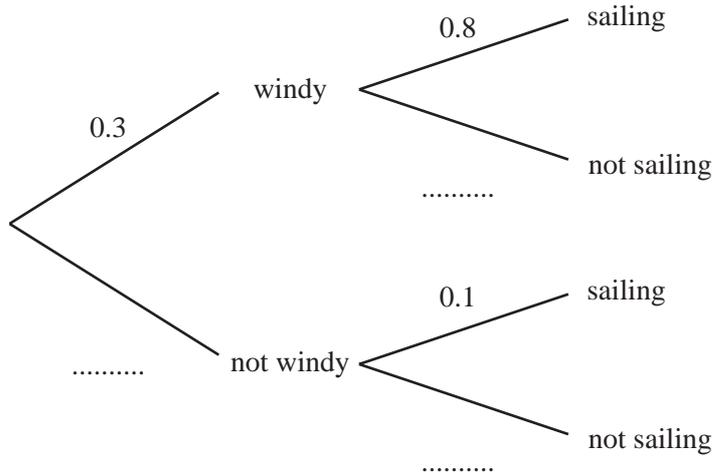
[2]

(ii) Find the probability that it is windy **and** Anita goes sailing.

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

9 **(a)** Solve the inequality $3(x - 1) < 6$.

Answer(a) .... [2]

(b) Show your solution on the number line below.

```
    ◄──┼────┼────┼────┼────┼────┼────┼────┼──► x
      −4   −3   −2   −1    0    1    2    3    4
```
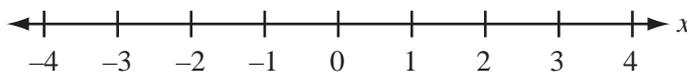
[2]

10 The Venn diagram shows the numbers 1 to 9 placed in different regions.

U

A   3   1   4   B
          6   2   8   5
                    7
                    9
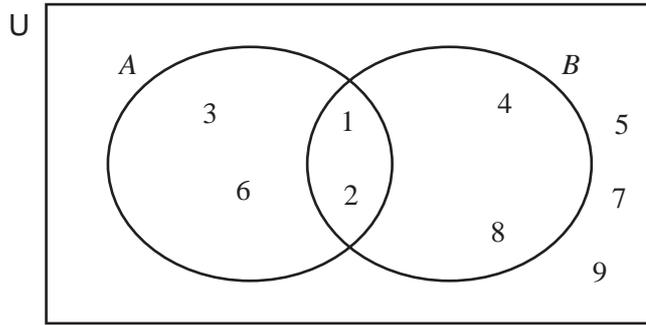
Complete the following statements.

(a) n(A) = ... [1]

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

(c) $(A \cup B)'$ = { .... } [1]

(d) A number in the Venn diagram is chosen at random.
Find the probability that the number is in A.

Answer(d) .... [1]

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11   −2,   1,   4,   7,   10, …..

(a) Write down the next term of the sequence.

Answer(a) .... [1]

(b) Find the nth term of the sequence.

Answer(b) .... [2]

(c) Is the number 296 a term of the sequence?
You **must** show your working.

[2]