UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

6733418139

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/01**

Paper 1 (Core) **November 2012**

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 **10** printed pages and **2** blank pages.

Formula List

Area, A, of triangle, base b, height h.	$A = \frac{1}{2}bh$
Area, A, of circle, radius r.	$A = \pi r^2$
Circumference, C, of circle, radius r.	$C = 2\pi r$
Curved surface area, A, of cylinder of radius r, height h.	$A = 2\pi rh$
Curved surface area, A, of cone of radius r, sloping edge l.	$A = \pi rl$
Curved surface area, A, of sphere of radius r.	$A = 4\pi r^2$
Volume, V, of prism, cross-sectional area A, length l.	$V = Al$
Volume, V, of pyramid, base area A, height h.	$V = \frac{1}{3}Ah$
Volume, V, of cylinder of radius r, height h.	$V = \pi r^2 h$
Volume, V, of cone of radius r, height h.	$V = \frac{1}{3}\pi r^2 h$
Volume, V, of sphere of radius r.	$V = \frac{4}{3}\pi r^3$

Answer **all** the questions.

1 **(a)** Write 43 200 correct to the nearest thousand.

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

(b) Write 43 200 in standard form.

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

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2 **(a)** Complete the following.

..... $\times \sqrt{36} = 30$ [1]

(b) Work out $10 + 8 \div 2$.

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

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3 Two adults and one child buy tickets to fly from Vienna to Paris.
The adult ticket price is $44.

The child ticket price is $\frac{3}{4}$ of the adult price.

(a) Write down the **total** cost of two adult tickets and one child ticket.

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

(b) The aircraft leaves Vienna airport at 10 45 and arrives in Paris at 13 15.

(i) How long, in hours and minutes, does the flight take?

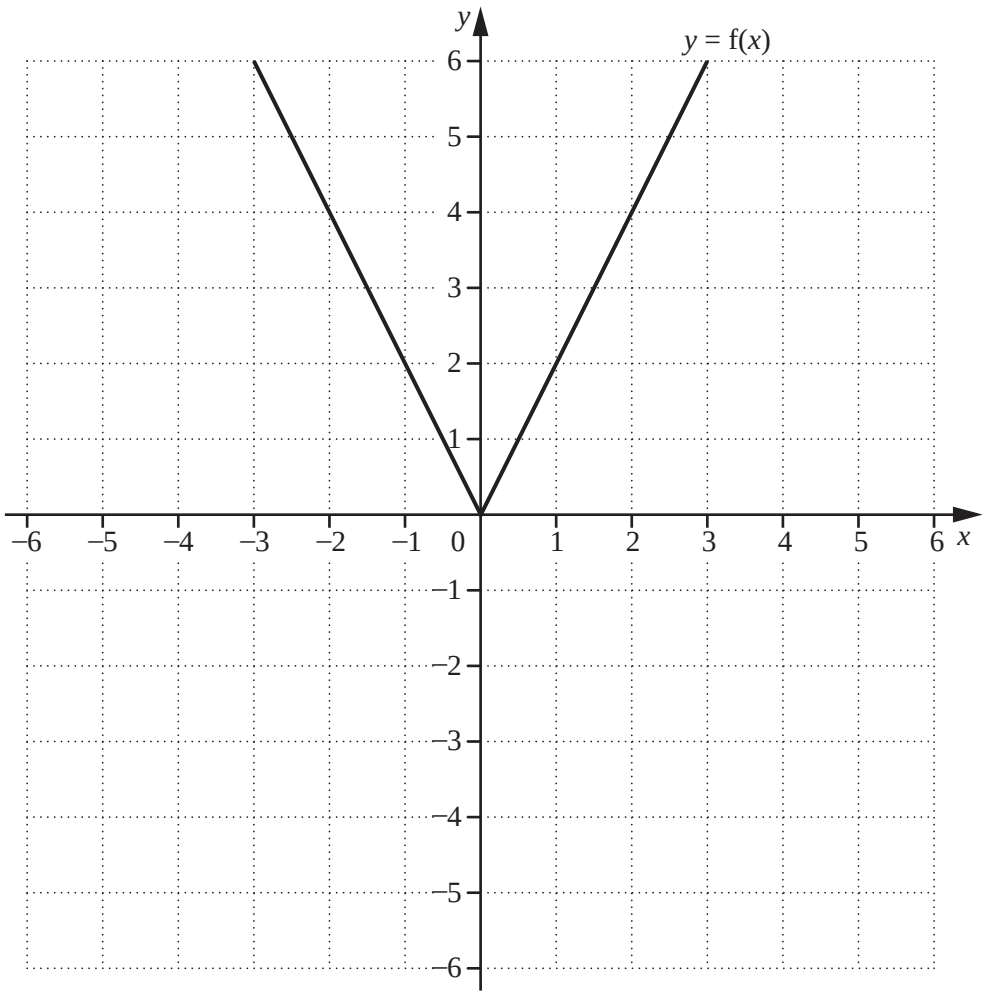
Answer (b)(i) ..... h ..... min [1]

(ii) The distance from Vienna to Paris is 1000 km.

Find the average speed of the aircraft.

Answer (b)(ii) ..... km/h [2]

4 The diagram shows the graph of the function $y = f(x)$ for $-3 \leqslant x \leqslant 3$.



(a) Write down the range of $y = f(x)$ for $-3 \leqslant x \leqslant 3$.

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

(b) On the same diagram, sketch the graph of $y = f(x - 3)$. [1]

(c) Describe the **single** transformation the maps $y = f(x)$ onto $y = f(x) - 3$.

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

5 A bag contains yellow, blue and green discs.
There are 60 discs in the bag.

One disc is chosen at random.

The probability that the disc is yellow is $\frac{1}{10}$.

The probability that the disc is green is $\frac{3}{10}$.

(a) Find the probability that the disc is blue.

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

(b) Work out how many discs are green.

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

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6 $$A = \frac{3\pi r^2}{2}$$

Make r the subject of the formula.

Answer $r =$ ..... [3]

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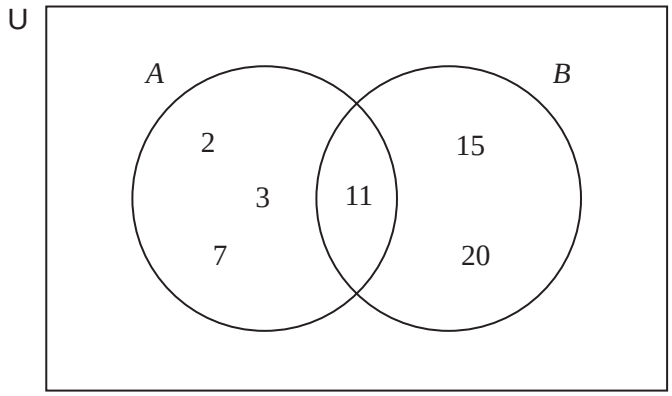
7 The Venn diagram shows the sets A and B.



(a) List the elements of set B .

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

(b) Complete the following statements.

(i) $2 \in$ ..... [1]

(ii) $n(A) =$ ..... [1]

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

8 The nth term of a sequence is $2^n - 5$.

(a) Find the value of the first term.

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

(b) Find the difference between the third term and the fourth term.

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

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9 **(a)** Factorise completely.

$3x + 13x^2$

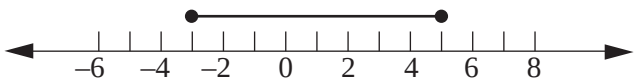
Answer (a) ..... [1]

(b) Write as a single fraction.

$$\frac{4x}{5} + \frac{y}{3}$$

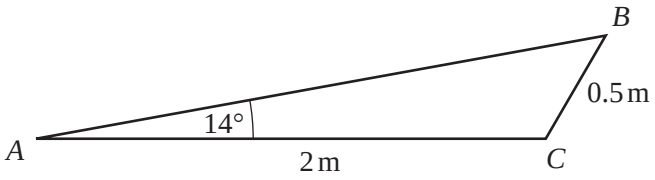
Answer (b) ..... [2]

(c) Write down the inequality that describes the set of numbers shown below.



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

10



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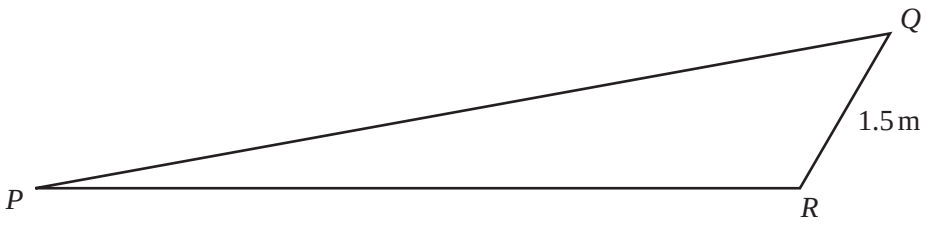


Triangle *ABC* is **similar** to triangle *PQR*.

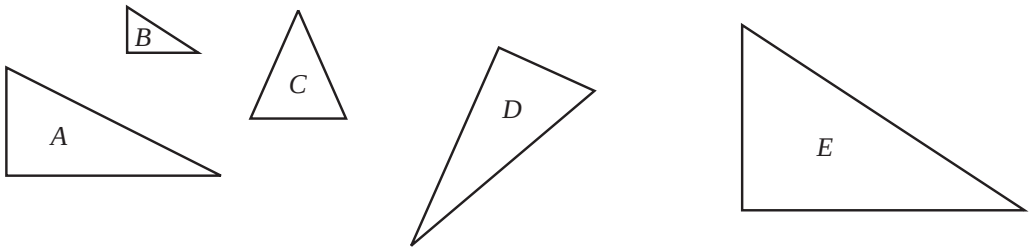
(a) Angle *BAC* = 14°.
Write down the size of angle *QPR*.

Answer (a) Angle *QPR* = ... [1]

(b) Find the length of *PR*.

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

(c)



Which two triangles are congruent?

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

11 **(a)** Write down the gradient of the straight line $y = 5x - 1$.

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

(b) Write down the equation of the line parallel to $y = 5x - 1$ which passes through the point (0, 3).

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

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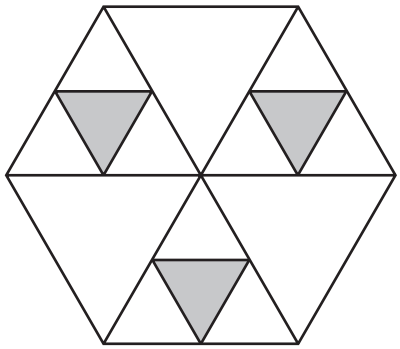
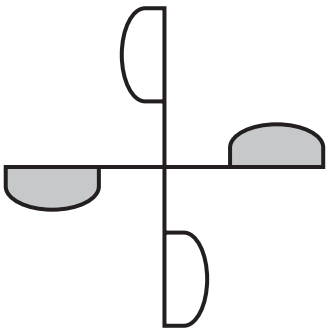
12 Carlos has two spinners.

(a) Write down the number of lines of symmetry of this spinner.



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

(b) Write down the order of rotational symmetry of this spinner.



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

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