UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

4075771834

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/12**

Paper 1 (Core) **May/June 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 **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.	$V = \frac{4}{3}\pi r^3$

For Examiner's Use

Answer **all** the questions.

1 **(a)** Write 2490 correct to 1 significant figure.

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

(b) Write 356 000 in standard form.

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

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2 **(a)** Solve the equation.

$$6x - 10 = x + 5$$

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

(b) Expand and simplify.

$$3(2x + 1) - 2x$$

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

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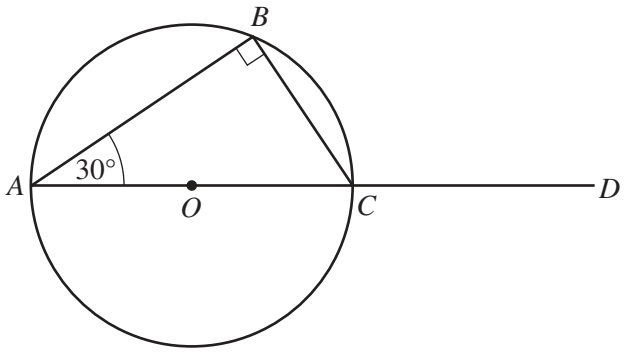
3 (a)



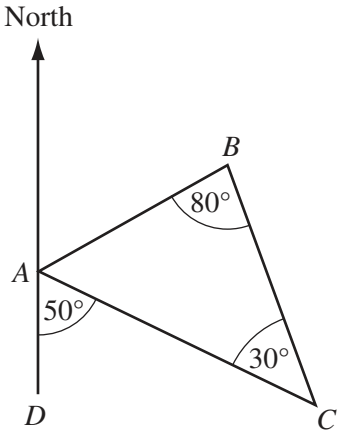
NOT TO SCALE

Points A, B and C lie on the circumference of a circle, centre O.
The line AOC is extended to D.
Angle $BAC = 30°$.

Calculate the size of angle BCD.

Answer(a) Angle BCD = ... [2]

(b)



NOT TO SCALE

The diagram shows a school field ABC.
The point D is due south of A.
Angle $DAC = 50°$, angle $ACB = 30°$ and angle $CBA = 80°$.

Find the bearing of B from A.

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

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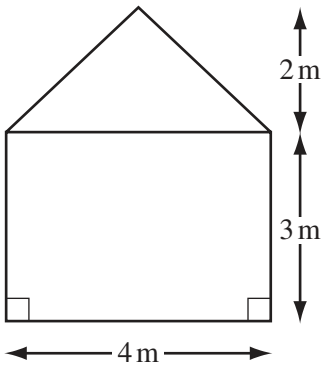
4



NOT TO SCALE

The diagram shows the cross-section of a hut.
The width of the hut is 4 m and the **total** height is 5 m.

(a) Find the area of the cross-section of the hut.

Answer(a) ..... m^2 [3]

(b) A house is **similar** in shape to the hut and has a total height of 15 m.

Calculate the width of the house.

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

For Examiner's Use

5 **(a)** Work out 3^{-2}.

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

(b) Factorise completely.

$$8pq - 4q^2$$

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

(c) Simplify.

$$\frac{x^6}{x^3}$$

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

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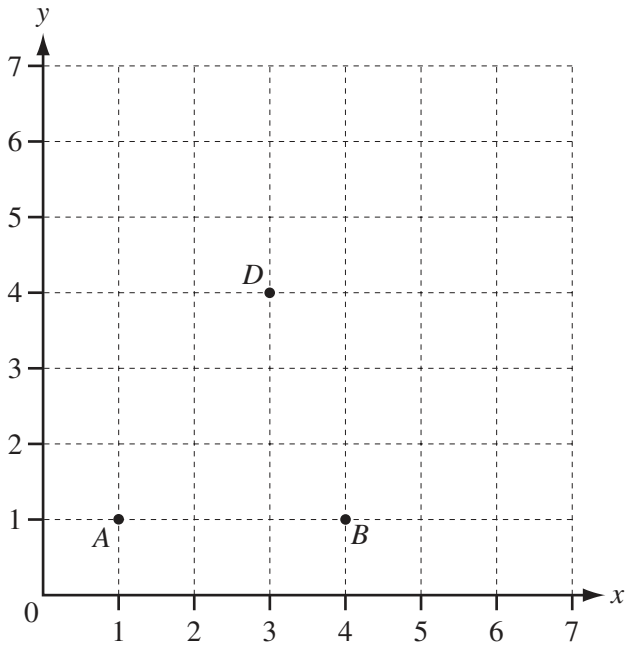
6 A train leaves Geneva at 09 10 and arrives in Verona at 14 10.
The distance from Geneva to Verona is 390 km.

Calculate the average speed of the train in km/h.

Answer ..... km/h [3]

For Examiner's Use

7



The points A, B and D are three vertices of a parallelogram $ABCD$.

(a) Draw the parallelogram $ABCD$. [1]

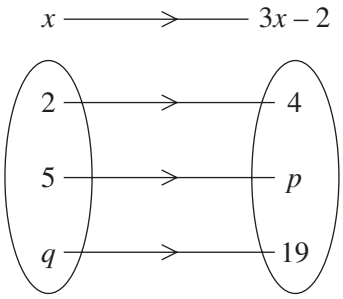
(b) Write down the coordinates of C.

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

(c) Find the gradient of the line AB.

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

8 The mapping diagram shows the function f(x) = 3x – 2.



(a) Find the values of p and q.

Answer(a) p = ...

q = ... [2]

(b) Write down the range of f(x).

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

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

(a) Write down the first term of this sequence.

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

(b) Write down the 60th term of this sequence.

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

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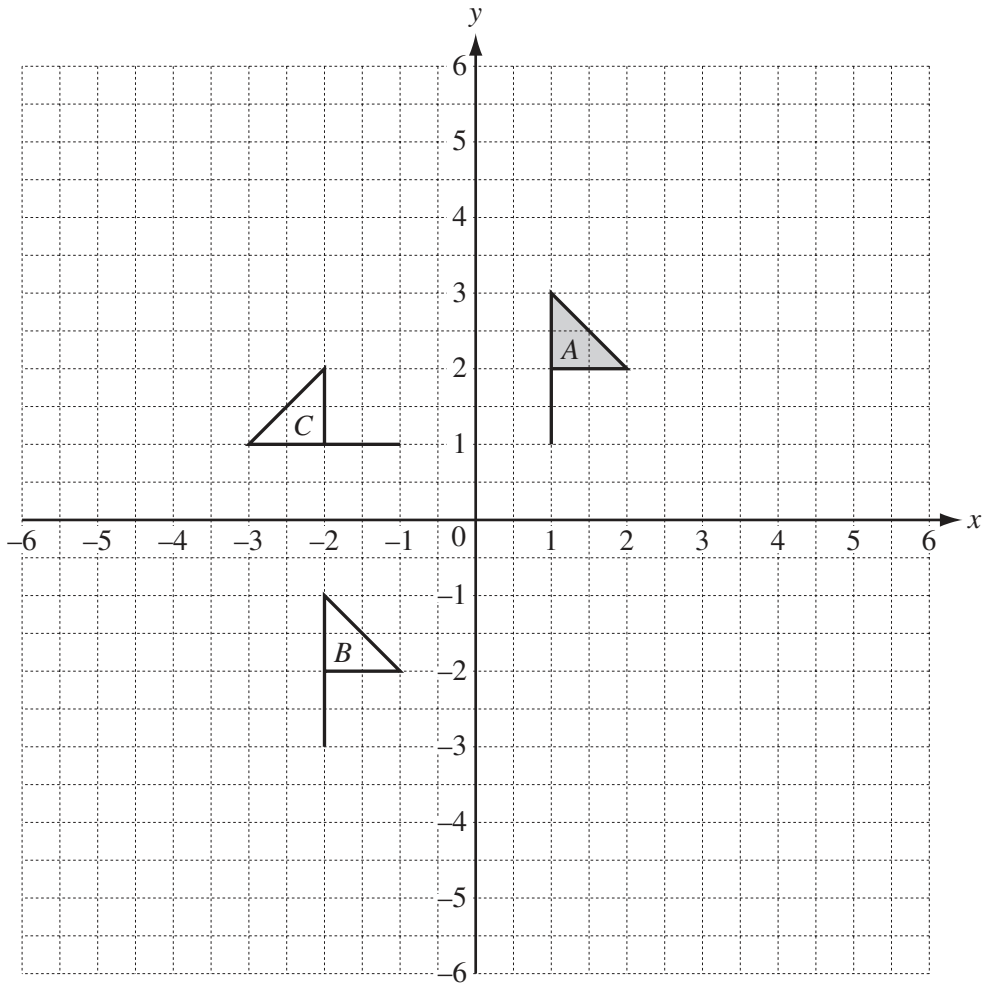
10



(a) Describe fully the **single** transformation which maps flag *A* onto flag *B*.

.....

..... [2]

(b) Describe fully the **single** transformation which maps flag *A* onto flag *C*.

.....

..... [3]

(c) On the diagram above draw the image of flag *A* after a reflection in the line $x = 3$. [2]

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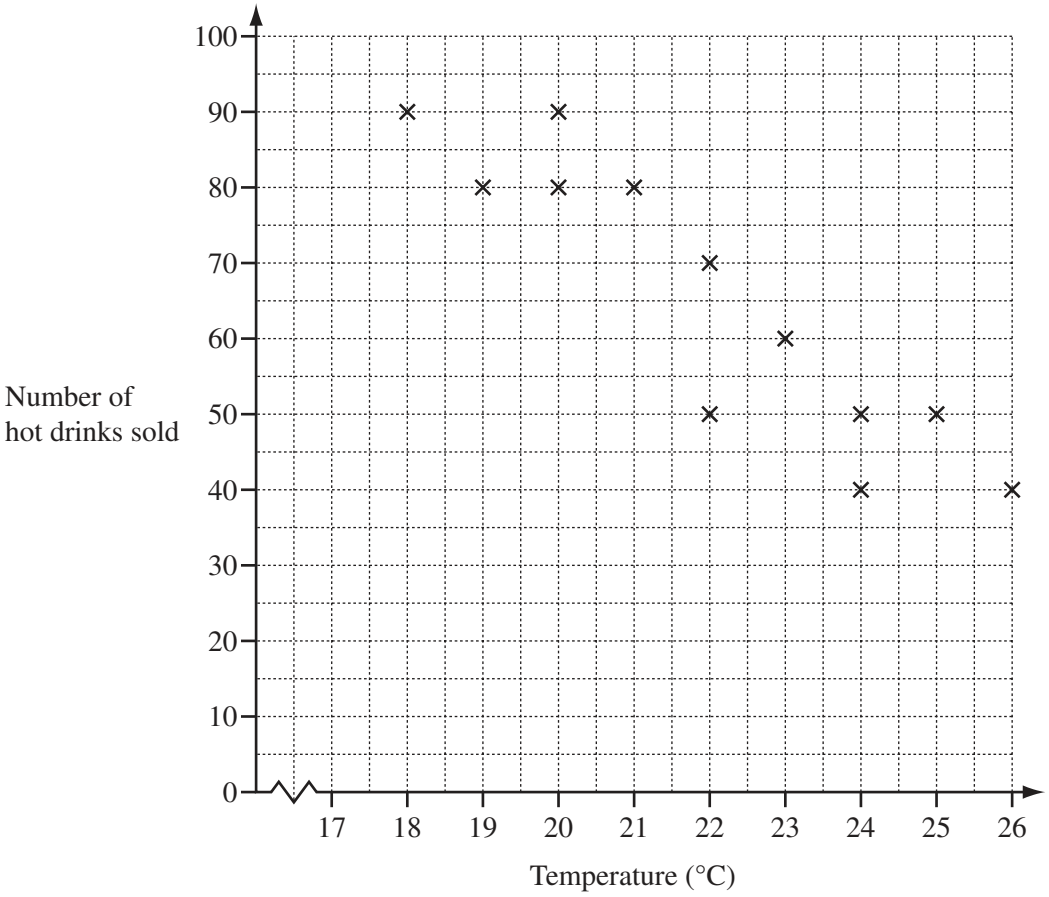
11



The scatter diagram shows the correlation between the number of hot drinks sold and the temperature each day during a 12 day period.

(a) Use one word to describe the correlation.

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

(b) The mean temperature was 22 °C and the mean number of hot drinks sold was 65.

(i) Plot the mean point on the scatter diagram above. [1]

(ii) Draw the line of best fit on the scatter diagram. [1]

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