UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/13**

Paper 1 (Core) **May/June 2013**

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.

This document consists of **11** printed pages and **1** blank page.

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

1 10 30 60 61 63 65 69

Using only numbers from the list above, write down

(a) a multiple of 7,

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

(b) a prime number,

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

(c) the lowest common multiple of 20 and 30.

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

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2 Write $\frac{1}{4}$ as

(a) a decimal,

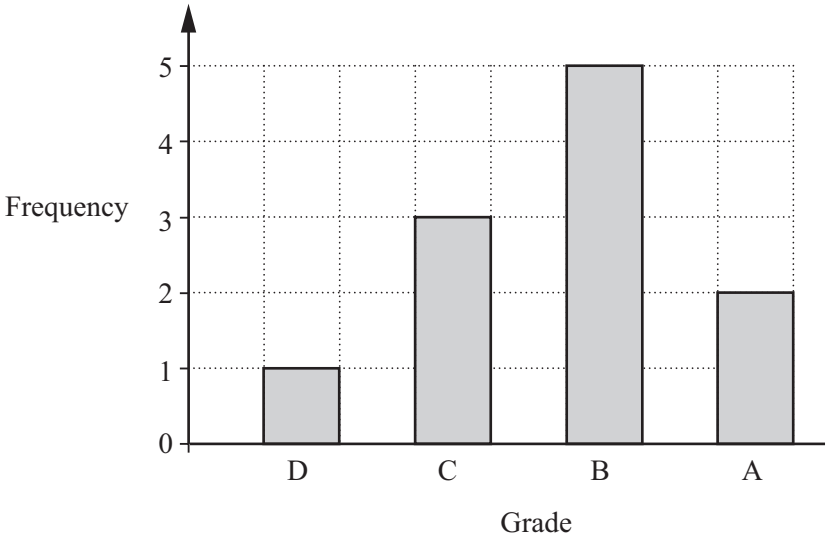
Answer (a) ..... [1]

(b) a percentage.

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

For Examiner's Use

3 The bar chart shows the grades obtained by a group of students in an examination.



(a) How many students achieved an A grade?

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

(b) Write down the modal grade.

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

(c) How many students were there altogether?

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

(d) How many more students achieved a B grade than a D grade?

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

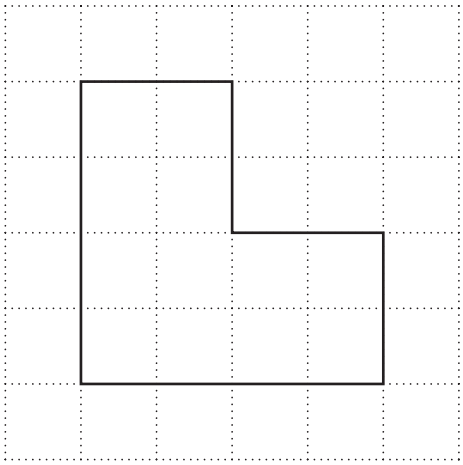
For Examiner's Use

4 Ahmed earns $2500 in May.
In June, he earns 2% more.

Work out how much he earns in June.

Answer $ ..... [2]

5



This shape is drawn on a one-centimetre square grid.

(a) Find the perimeter of this shape.

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

(b) Work out the area of this shape.

Answer (b) ..... cm^2 [1]

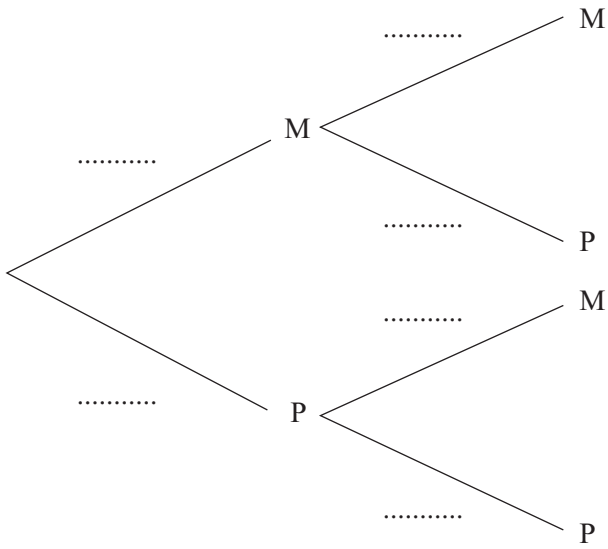
For Examiner's Use

6 A box of chocolates contains 4 milk chocolates (M) and 6 plain chocolates (P).
One chocolate is chosen at random and is **not** replaced.
A second chocolate is chosen at random.

(a) Find the probability that the first chocolate chosen is a milk chocolate.

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

(b) Complete the tree diagram.

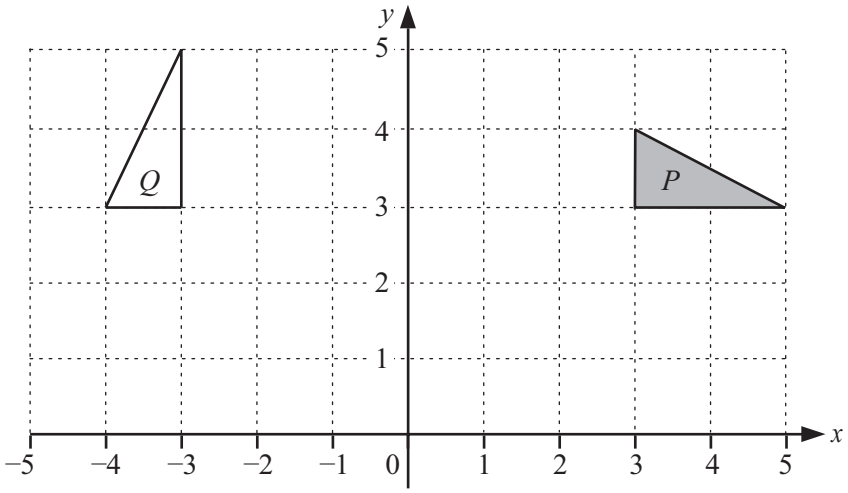


[3]

(c) Find the probability that **both** of the chocolates chosen are milk chocolates.

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

7



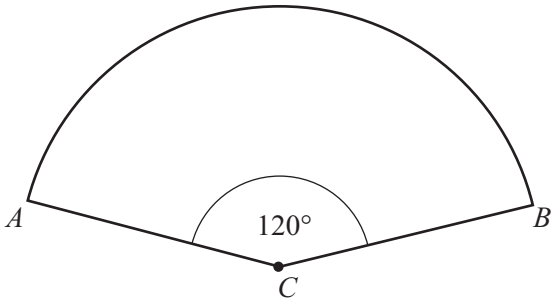
Describe fully the **single** transformation which maps triangle *P* onto triangle *Q*.

.....

..... [3]

For Examiner's Use

8



NOT TO SCALE

ABC is a sector of a circle with **circumference** 300 cm.
Angle *ACB* is 120°.

Find the length of the arc *AB*.

Answer ..... cm [2]

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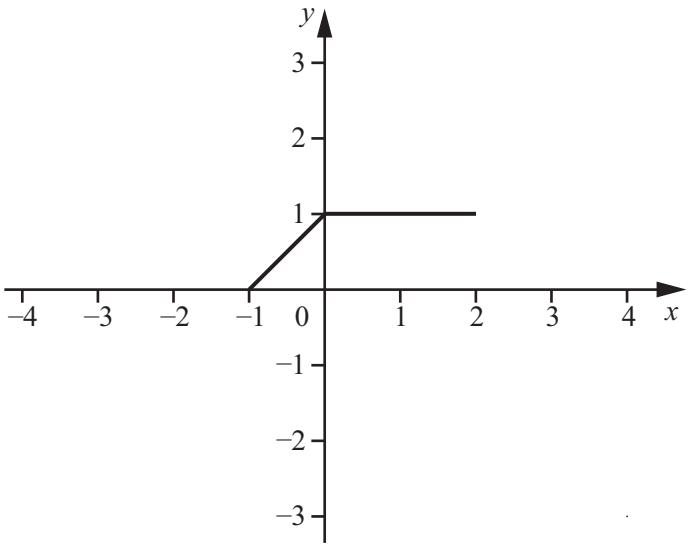
9 The diagram shows the graph of the function $y = f(x)$ for $-1 \leqslant x \leqslant 2$.



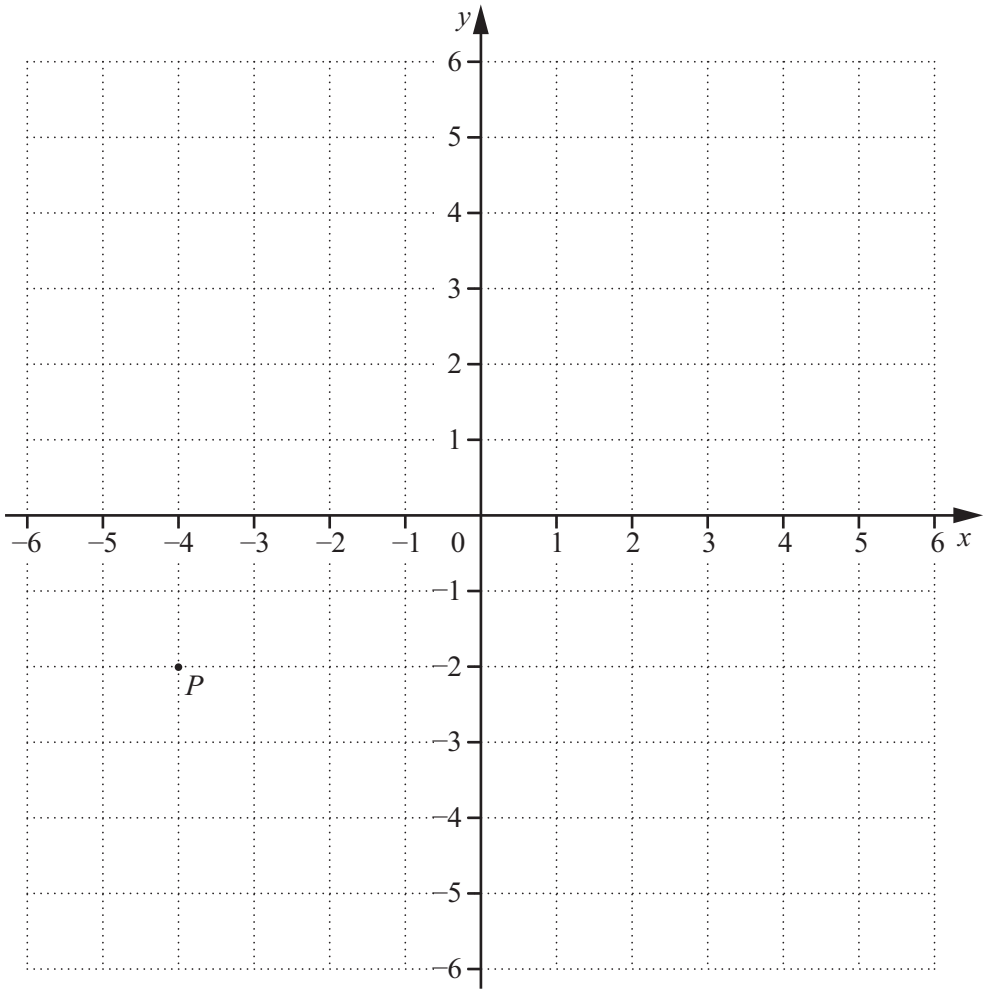
(a) On the diagram, draw the graph of $y = f(x + 3)$. [1]

(b) On the diagram, draw the graph of $y = f(x) - 2$. [1]

(c) Describe the **single** transformation that maps $y = f(x)$ onto $y = f(x) - 2$.

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

10



The diagram shows the point $P(-4, -2)$.

(a) $\overrightarrow{PQ} = \begin{pmatrix} 8 \\ 2 \end{pmatrix}$

On the grid, plot and label the point Q. [1]

(b) R is the midpoint of the line PQ.

Write down the co-ordinates of R.

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

(c) The line PQ is parallel to the line $y = \frac{1}{4}x + 1$.

Write down the equation of the line PQ in the form $y = mx + c$

Answer (c) $y =$ ..... [2]

For Examiner's Use

For Examiner's Use

11 **(a)** Simplify.

(i) $5 + 3d - 1 + 4d$

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

(ii) $t^3 \times t$

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

(b) Expand the brackets.

$8(4 - 3n)$

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

(c) Factorise the following expression.

$9x^2 - 15xy$

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

12 Solve the following equation.

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$$7q - 5 = 6 - 3q$$

Answer $q =$ ..... [2]

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