UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/01**

Paper 1 (Core) **For Examination from 2010**

SPECIMEN PAPER

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.

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 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 of the marks for this paper is 40.

For Examiner's Use

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

UNIVERSITY *of* CAMBRIDGE
International Examinations

[Turn over

Formula List

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

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

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

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. $\qquad\qquad A = 4\pi r^2$

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

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

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

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

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

Answer **all** the questions.

1 At noon, in a ski resort, the temperature was 2 °C.
At midnight it was –9 °C.

Write down the difference in temperature between noon and midnight.

Answer .... °C [1]

2 Write $\dfrac{17}{20}$ as a percentage.

Answer .... [1]

3 Work out $15 - 4 \times 6$.

Answer .... [1]

4 Work out $\dfrac{2}{3}$ of $75.

Answer $ .... [1]

5 Write down the value of $(0.2)^2$.

Answer .... [1]

6   8   11 $\dfrac{5}{6}$ $\sqrt{3}$ 12

From these five numbers, write down

(a) an irrational number,

Answer(a) .... [1]

(b) a prime number,

Answer(b) .... [1]

(c) the highest common factor of 24 and 40.

Answer(c) .... [1]

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7 Work out $\dfrac{2}{5} - \dfrac{1}{15}$, giving your answer in its lowest terms.

Answer .... [3]

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8 Johan walks at 3 km/h for 3 hours.
He then walks another 5 kilometres in 2 hours.
Calculate Johan's overall average speed.

Answer .... km/h [2]

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9 Factorise completely $15a - 3ac$.

Answer .... [2]

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10 Solve the equation $3(n - 2) = 2 - 3n$.

Answer n = ... [3]

11 (a) Write 5^{-1} as a fraction.

Answer(a) .... [1]

(b) Simplify $12q^6 \div 6q^2$.

Answer(b) .... [2]

12
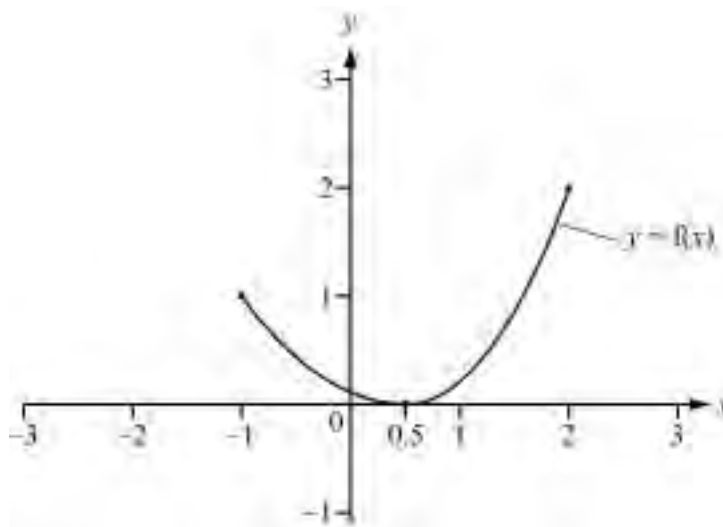
(a) For the graph of the function f(x) shown in the diagram, write down

(i) the domain,

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

(ii) the range.

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

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

13 Solve the simultaneous equations.

$$2m + 3n = 13$$
$$3m - n = 3$$

Answer $m =$ ....

$n =$ .... [3]

14
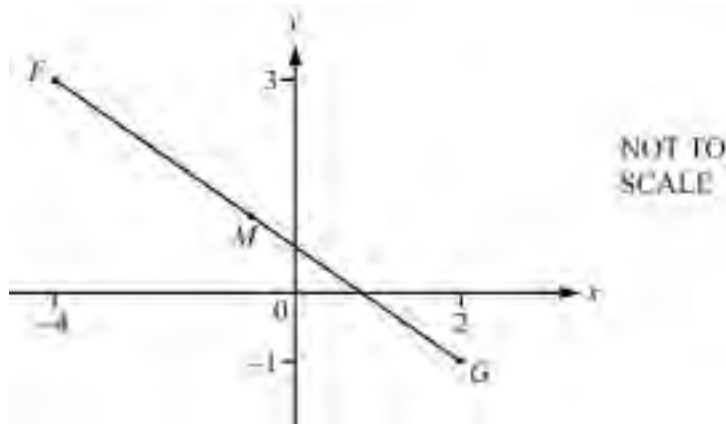
F is the point (–4 , 3) and *G* is the point (2, –1).

(a) Write down $\overrightarrow{FG}$ in component form.

Answer(a) $\begin{pmatrix} \\ \end{pmatrix}$ [2]

(b) Write down the co-ordinates of *M*, the mid-point of *FG*.

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

15
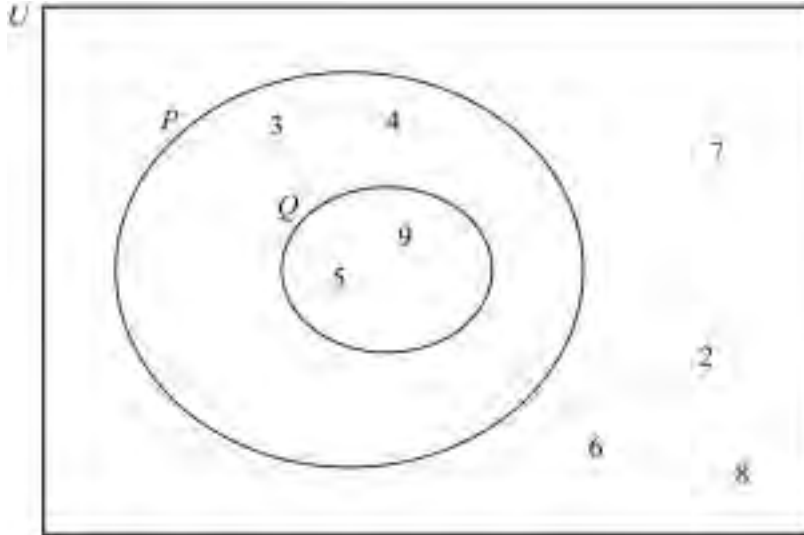
The diagram shows a universal set, $U = \{2, 3, 4, 5, 6, 7, 8, 9\}$, and the sets P and Q.

(a) Write down

    (i) the set P,

Answer(a)(i) $\{$.........................$\}$ [1]

    (ii) the set P',

Answer(a)(ii) $\{$.........................$\}$ [1]

    (iii) the set $P \cap Q$

Answer(a)(iii) $\{$.........................$\}$ [1]

(b) Insert one of the symbols $\in, \subset, \cup, \cap$ to make each of the following statements correct.

    (i) Q .... P [1]

    (ii) P .... $Q = P$ [1]

16
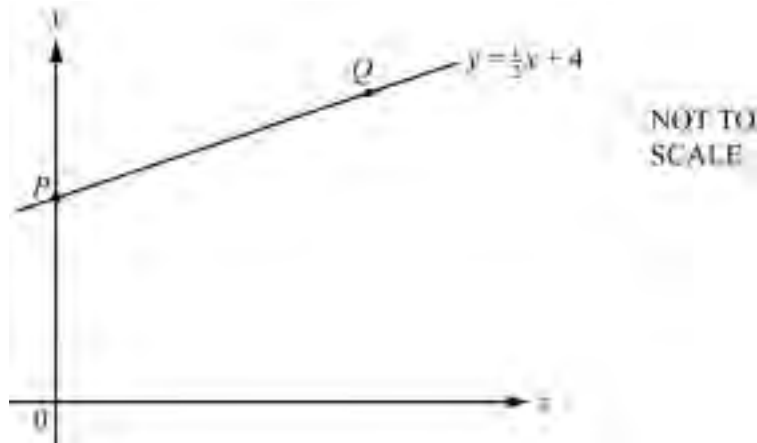
The diagram shows the straight line $y = \dfrac{1}{2}x + 4$.

The line crosses the y-axis at P.

(a) Write down the y co-ordinate of P.

Answer(a) .... [1]

(b) Write down the gradient of the line.

Answer(b) .... [1]

(c) At Q, $y = 6$.

Find the x co-ordinate of Q.

Answer(c) .... [1]

(d) Another straight line, L, is parallel to the line $y = \dfrac{1}{2}x + 4$ and passes through $(0, 1)$.

Write down the equation of L in the form $y = mx + c$.

Answer(d) .... [2]