UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

MATHEMATICS **0580/11**

Paper 1 (Core) **October/November 2010**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Mathematical tables (optional)
Geometrical instruments
Tracing paper (optional)

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.
You may use a pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
If working is needed for any question it must be shown below that question.
Electronic calculators should be used.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142.

At the end of the examination, fasten all your work securely together.
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 56.

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

For Examiner's Use

1 On Monday the temperature was 3°C.
On Tuesday the temperature fell by 5°C.

Write down the temperature on Tuesday.

Answer ..... °C [1]

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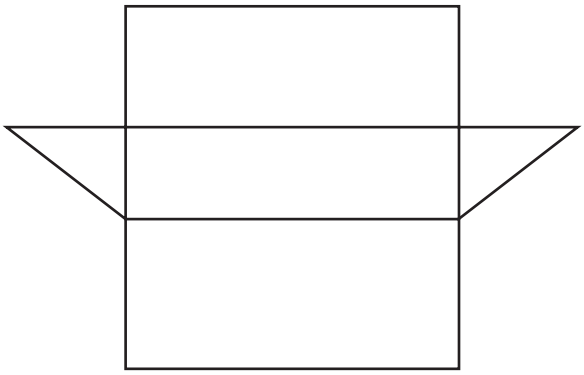
2 Write 0.00387 in standard form.

Answer ..... [1]

3



The diagram is an accurate net for a solid shape.

Write down the geometrical name for this solid shape.

Answer ..... [1]

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4 On a map, a straight section of a canal is 3.5 cm long.
The scale of the map is 1 cm to 5 km.

Calculate the actual length of this straight section.

Answer ..... km [1]

For Examiner's Use

5 Sophie invests \$450 at a rate of 1.5% per year **simple** interest.

Calculate the interest she earns after 8 years.

Answer \$ ..... [2]

6

Using a straight edge and compasses only, construct the locus of points which are equidistant from point *A* and from point *B*.

Show clearly all your construction arcs. [2]

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7 A box is 12 cm high, correct to the nearest centimetre.

Complete the statement about the height, h cm, of the box.

Answer ..... $\leqslant h <$ ..... [2]

---

8 The metal used to make a coin is a mixture of steel and copper.

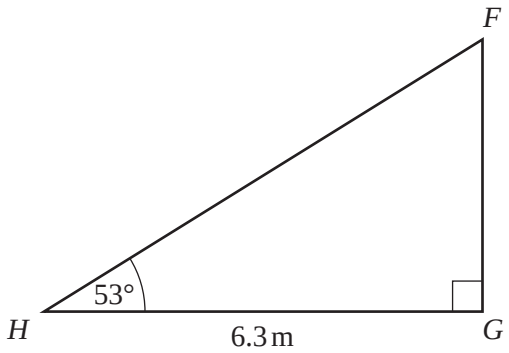
The ratio mass of steel : mass of copper is 108 : 7.

The coin has a total mass of 230 milligrams.

Calculate the mass of copper in this coin.

Answer ..... milligrams [2]

9



NOT TO SCALE

Calculate the length FG.

Answer ..... m [2]

For Examiner's Use

10 Use your calculator to find the value of $\sqrt{25.63}$.

Write down your answer

(a) as it appears on your calculator,

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

(b) correct to 4 significant figures.

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

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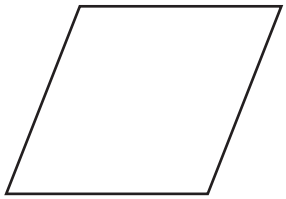
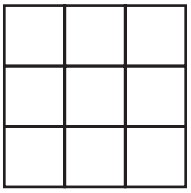
11 **(a)**



The diagram shows a rhombus.

Draw all the lines of symmetry. [2]

(b)



Shade **two** squares in the diagram above so that the figure has **one** line of symmetry and **no** rotational symmetry. [1]

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12 Solve the simultaneous equations.

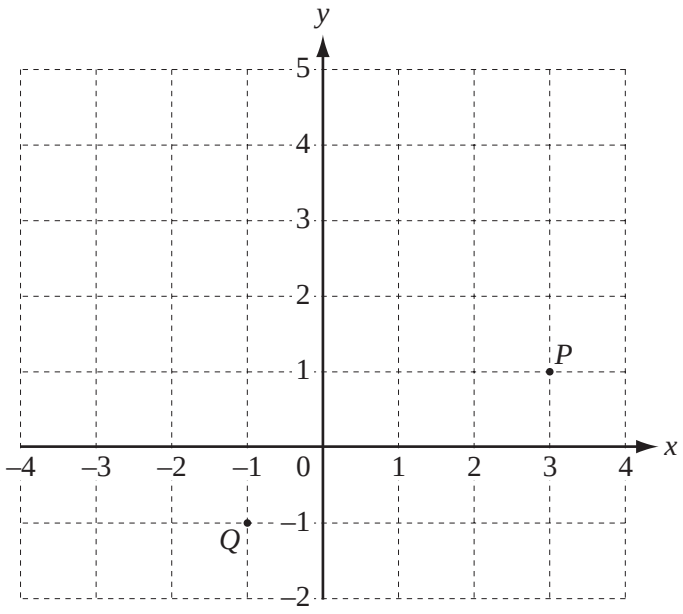
$$3x + y \quad 18$$
$$4x \quad 2y \quad 34$$

Answer $x =$ .....

$y =$ ..... [3]

[Turn over

13



The points P (3 , 1) and Q (1 , 1) are marked on the grid.

(a) Write down the vector $\overrightarrow{QP}$.

Answer(a) $\overrightarrow{QP} = \begin{pmatrix} \\ \end{pmatrix}$ [1]

(b) R and S are two more points.

$\overrightarrow{PR} = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$ and $\overrightarrow{PS} = 3\overrightarrow{PR}$.

(i) Write down the vector $\overrightarrow{PS}$.

Answer(b)(i) $\overrightarrow{PS} = \begin{pmatrix} \\ \end{pmatrix}$ [1]

(ii) Mark the point S on the grid. [1]

For Examiner's Use

14 Simplify the following.

(a) 8^0

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

(b) $(x^5)^2$

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

(c) $p^3 \div p^4$

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

---

15 A tourist changes \$900 to euros (€) when the exchange rate is €1 = \$1.356.

Calculate the amount he receives.
Give your answer correct to 2 decimal places.

Answer € ..... [3]

[Turn over

16 **(a)** Write down all the common factors of 30 and 42.

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

(b) Write down the smallest number which is a multiple of both 12 and 18.

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

---

17 Simon has ten cards, numbered 1 to 10.
He chooses a card at random.

Write down the probability that the number on the card is

(a) 8,

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

(b) 12,

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

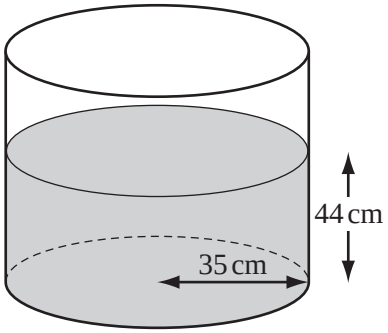
(c) an odd number,

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

(d) **not** a multiple of 3.

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

18



NOT TO SCALE

A cylindrical tank, with radius 35 cm, is filled with water to a depth of 44 cm.

(a) Calculate the area of the base of the tank.

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

(b) Calculate the volume of water in the tank.

Answer(b) ..... cm^3 [1]

(c) Change your answer to **part (b)** into litres.

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

[Turn over

For Examiner's Use

19 In this question, **you must show all the steps in your working.**

Without using a calculator, find the value of

(a) $1\frac{1}{3} \div 2\frac{4}{5}$,

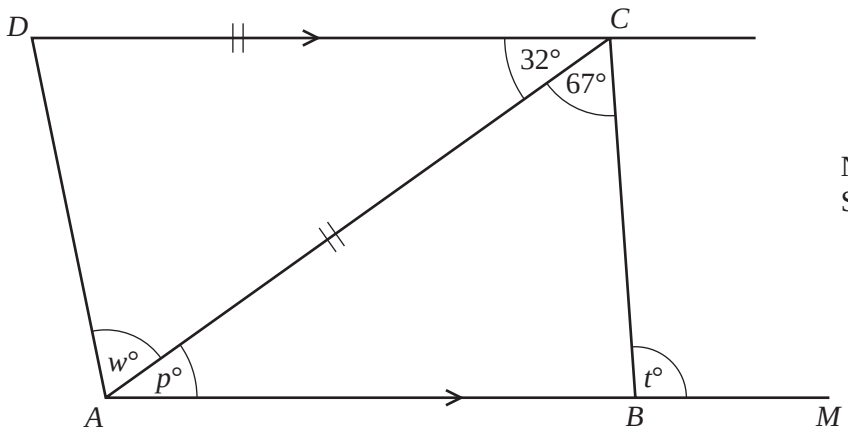
Answer(a) ..... [3]

(b) $\frac{13}{15} + \frac{3}{5}$.

Give your answer as a mixed number.

Answer(b) ..... [3]

20



NOT TO SCALE

For Examiner's Use

The diagram shows a quadrilateral *ABCD* with *DC* parallel to *AB*.

(a) Write down the geometrical name for a quadrilateral with **only one** pair of parallel sides.

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

(b) *ABM* is a straight line and *DC* = *AC*.
Angle *DCA* = 32° and angle *ACB* = 67°.

Find the values of *p*, *t* and *w*, giving a reason for each answer.

Answer (b) p = ...because .....

..... [2]

t = ...because .....

..... [2]

w = ...because .....

..... [2]

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