CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER			

MATHEMATICS 0580/11

Paper 1 (Core) **October/November 2013**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator   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 **10** printed pages and **2** blank pages.

[Turn over

1 Write in figures the number one hundred and twenty one thousand and forty two.

Answer .... [1]

_____

2 Write down the number of centimetres in $2\frac{1}{2}$ metres.

Answer .... cm [1]

_____

3 Work out 72 cents as a percentage of 83 cents.

Answer .... % [1]

_____

4 There were 41 524 people at a football match.

(a) Write 41 524 correct to the nearest thousand.
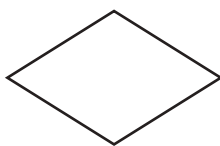
Answer(a) .... [1]

(b) One quarter of the 41 524 people left before the end of the game.

Find the number of people who left before the end of the game.

Answer(b) .... [1]

_____

5 **(a)** Write down the order of rotational symmetry of this shape.

Answer(a) .... [1]

(b) Draw the lines of symmetry on this shape.

[1]

_____

6
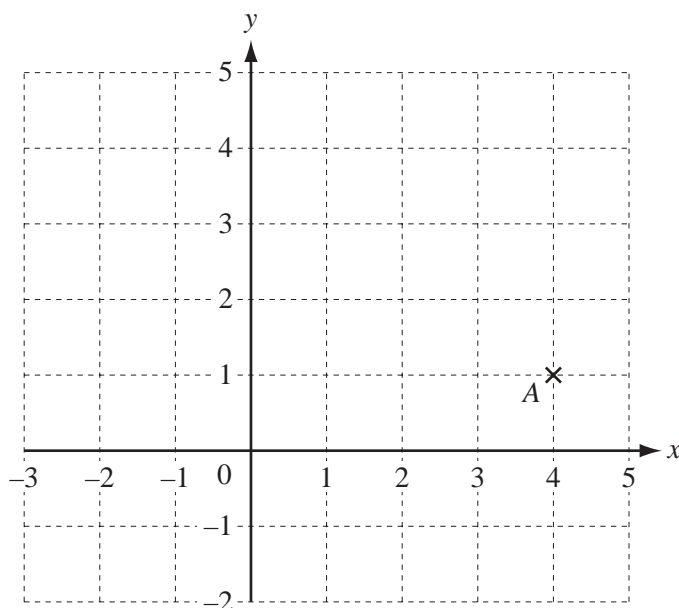
(a) Write down the co-ordinates of point *A*.

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

(b) On the grid, plot the point (–1, 3). [1]

_____

7 Simplify the following expression.
$$5a - 3b - 2a - b$$

Answer .... [2]

_____

8 Calculate $\dfrac{5.27 - 0.93}{4.89 - 4.07}$.

Give your answer correct to 4 significant figures.

Answer .... [2]

_____

9
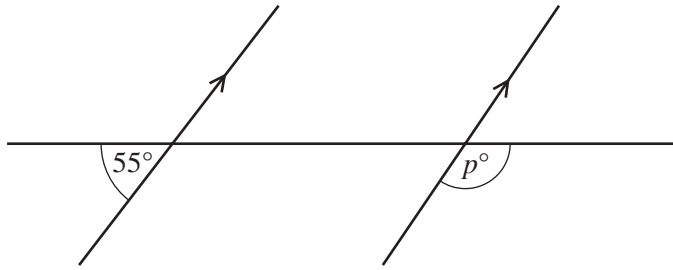
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Find the value of *p*.

Answer p = ... [2]

10 Calculate 17.5% of 44 kg.

Answer .... kg [2]

11 Find the value of

(a) 9^4,

Answer(a) .... [1]

(b) 6^0.

Answer(b) .... [1]

12 Solve the equation.
$$5 - 2x = 3x - 19$$

Answer x = ... [2]

_____

13 Yim knows one angle of an isosceles triangle is 48°.
He says one of the other angles **must** be 66°.

Explain why Yim is wrong.

Answer ....

.... [2]

_____

14

S	P	A	C	E	S

One of the 6 letters is taken at random.

(a) Write down the probability that the letter is S.

Answer(a) .... [1]

(b) The letter is replaced and again a letter is taken at random.
This is repeated 600 times.

How many times would you expect the letter to be S?

Answer(b) .... [1]

_____

15 The length, *p* cm, of a car is 440 cm, correct to the nearest 10 cm.

Complete the statement about *p*.

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

_____

16

8   15   7   8   7   15   4   13   4   3   10   2   9   4   5

(a) Write down the mode.

Answer(a) .... [1]

(b) Work out the median.

Answer(b) .... [2]

_____

17 Bruce invested $800 at a rate of 3% per year simple interest.

Calculate the **total** amount he has after 6 years.

Answer $ .... [3]

_____

18
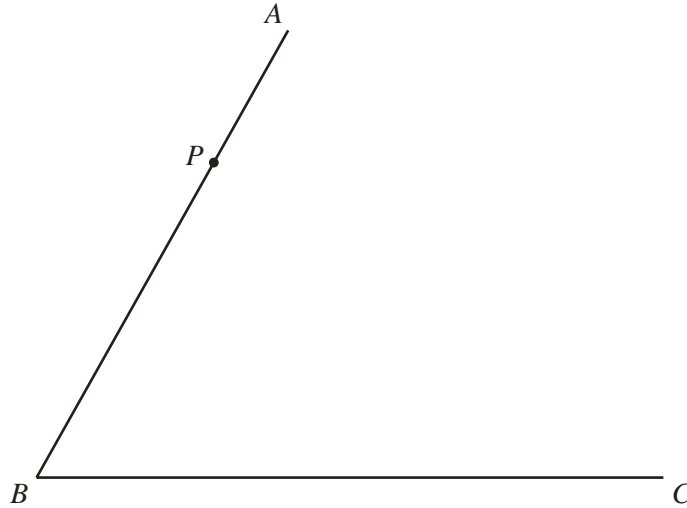
(a) On the diagram above, draw a line perpendicular to the line *AB*, through the point *P*. [1]

(b) **Using a straight edge and compasses only**, construct the locus of points that are equidistant from *A* and from *C*. [2]

19 The diagram shows a ladder of length 8 m leaning against a vertical wall.

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h $\quad$ 8 m

56°
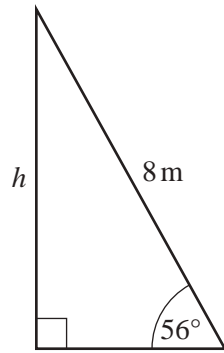
Use trigonometry to calculate h.
Give your answer correct to 2 significant figures.

Answer h = ... m [3]

20 $\mathbf{a} = \begin{pmatrix} 4 \\ 3 \end{pmatrix}$ $\qquad$ $\mathbf{b} = \begin{pmatrix} -2 \\ 0 \end{pmatrix}$ $\qquad$ $\mathbf{c} = \begin{pmatrix} 1 \\ -5 \end{pmatrix}$

Find

(a) $4\mathbf{a}$,

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

(b) $\mathbf{b} - \mathbf{c}$.

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

21 **Do not use a calculator in this question and show all the steps of your working.**

Give each answer as a fraction in its lowest terms.

Work out.

(a) $\dfrac{3}{4} - \dfrac{1}{12}$

Answer(a) .... [2]

(b) $2\dfrac{1}{2} \times \dfrac{4}{25}$

Answer(b) .... [2]

_____

22 (a) Factorise completely.
$$6ab - 24bc$$

Answer(a) .... [2]

(b) Rearrange the following formula to make *m* the subject.

$$j = \dfrac{m}{n} - k$$

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

_____

 [Turn over

23 **(a)** Here are the first four terms of a sequence.

$$27 \qquad 23 \qquad 19 \qquad 15$$

(i) Write down the next term in the sequence.

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

(ii) Explain how you worked out your answer to **part (a)(i)**.

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

(b) The *n*th term of a different sequence is $4n - 2$.

Write down the first three terms of this sequence.

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

(c) Here are the first four terms of another sequence.

$$-1 \qquad 2 \qquad 5 \qquad 8$$

Write down the *n*th term of this sequence.

Answer(c) .... [2]

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