UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

MATHEMATICS **0581/11**

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

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Tracing paper (optional)
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.
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.

For Examiner's Use

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

Answer ..... [1]

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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]

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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]

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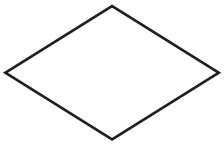
5 **(a)** Write down the order of rotational symmetry of this shape.



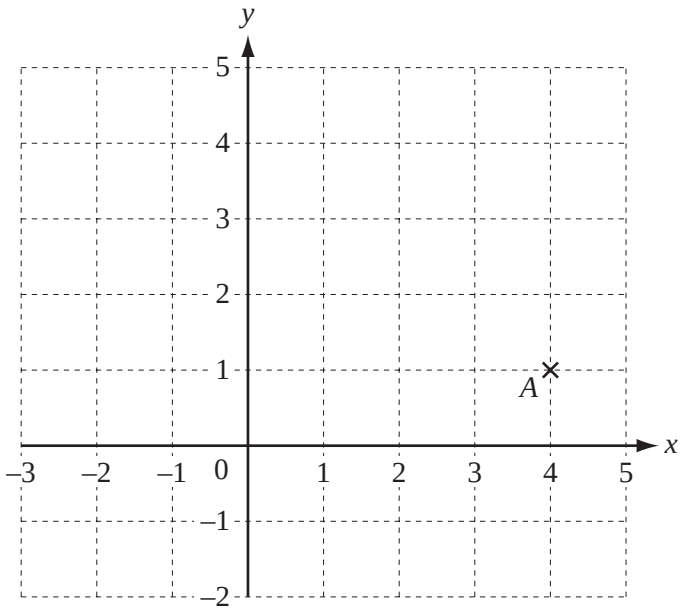
Answer(a) ..... [1]

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

[1]

For Examiner's Use

6



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

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

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

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7 Simplify the following expression.

$$5a - 3b - 2a - b$$

Answer ..... [2]

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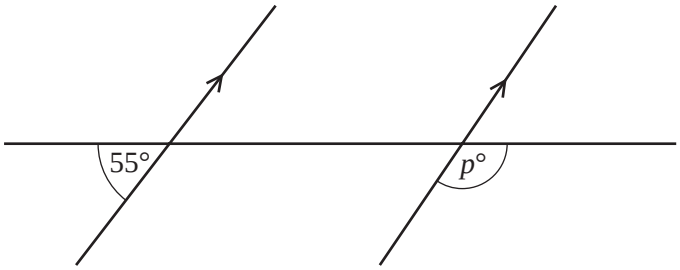
8 Calculate $\dfrac{5.27 - 0.93}{4.89 - 4.07}$.

Give your answer correct to 4 significant figures.

Answer ..... [2]

9



NOT TO SCALE

Find the value of p.

Answer p = ... [2]

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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]

For Examiner's Use

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]

For Examiner's Use

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]

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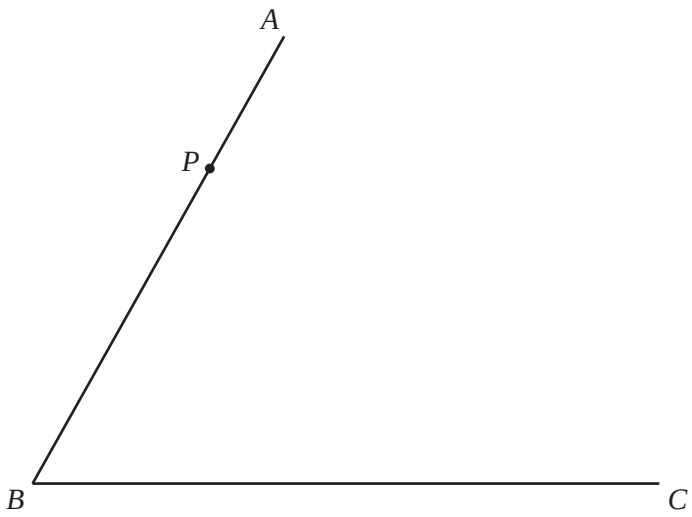
17 Bruce invested \$800 at a rate of 3% per year simple interest.

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

Answer \$ ..... [3]

18

For Examiner's Use

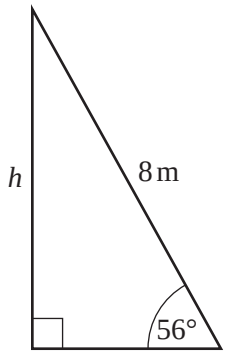


(a) On the diagram above, draw a line perpendicular to the line *AB*, through the point *P*. [1]

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

[Turn over

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



NOT TO SCALE

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

Answer h = ... m [3]

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

Find

(a) 4**a**,

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

(b) **b** – **c**.

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

For Examiner's Use

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) $\frac{3}{4} - \frac{1}{12}$

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

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

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

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22 (a) Factorise completely.

$6ab - 24bc$

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

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

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

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

For Examiner's Use

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

27 23 19 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 nth 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 2 5 8

Write down the nth term of this sequence.

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

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