UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

MATHEMATICS **0580/13**

Paper 1 (Core) **May/June 2012**

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 **10** printed pages and **2** blank pages.

For Examiner's Use

1 Write $\frac{2}{5}$ as a percentage.

Answer ..... %[1]

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2 Change 5.2 square metres into square centimetres.

Answer ..... cm^2 [1]

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3 Mohinder changes \$240 into Rupees.
The exchange rate is \$1 = 46.2875 Rupees.

Calculate how many Rupees he receives.

Answer ..... Rupees [1]

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4 **(a)** Write down the next prime number after 47.

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

(b) Write down the next square number after 49.

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

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5 $<$ $>$ $=$

Choose one of these symbols to make each statement correct.

(a) -15 ..... -5 [1]

(b) $(-5)^2$ ..... 25 [1]

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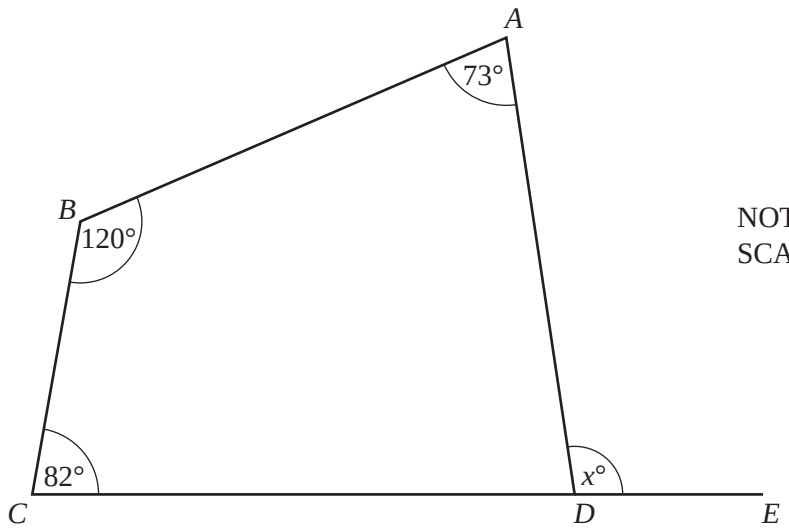
6 Hans invests \$750 for 8 years at a rate of 2% per year simple interest.

Calculate the interest Hans receives.

Answer \$ ..... [2]

7



NOT TO SCALE

The diagram shows a quadrilateral *ABCD*.
CDE is a straight line.

Calculate the value of x.

Answer $x =$ ..... [2]

For Examiner's Use

8 Work out

(a) $\begin{pmatrix} 5 \\ 3 \end{pmatrix} - \begin{pmatrix} 6 \\ -2 \end{pmatrix}$,

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

(b) $5\begin{pmatrix} 3 \\ -4 \end{pmatrix}$.

Answer(b) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

---

9 Simplify

(a) a^0,

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

(b) $b^3 \times b^{-5}$.

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

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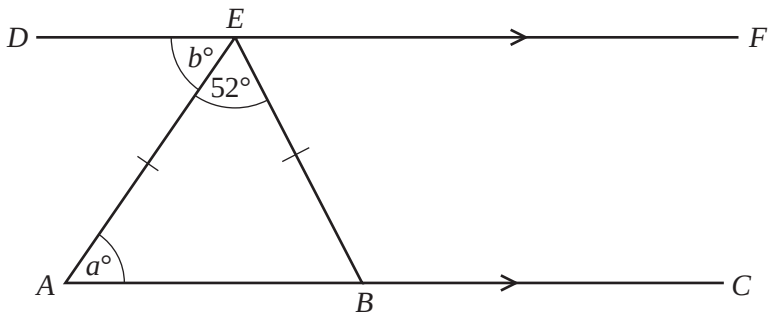
10 During her holiday, Hannah rents a bike.
She pays a fixed cost of \$8 and then a cost of \$4.50 per day.
Hannah pays with a \$50 note and receives \$10.50 change.

Calculate for how many days Hannah rents the bike.

Answer ..... days [3]

11



NOT TO SCALE

In the diagram lines AC and DF are parallel and $AE = EB$.
Angle $AEB = 52°$.

(a) Write down the mathematical name for triangle AEB.

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

(b) Work out the value of a.

Answer(b) $a =$ ..... [1]

(c) Explain why $a = b$.

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

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12 Solve the simultaneous equations.

$$4x + y = 18$$
$$5x + 3y = 19$$

Answer $x =$ .....

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

For Examiner's Use

13 **(a)** Write 0.000 64 in standard form.

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

(b) Calculate, writing the answer in standard form.

$$\frac{8.18 \times 10^7}{5.84 \times 10^4}$$

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

14

7	3	8	2	5	1
5	3	4	6	2	3

For the numbers above work out the

(a) mode,

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

(b) median,

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

(c) range.

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

For Examiner's Use

15 **Without using your calculator**, work out the following.
Show all the steps of your working and give each answer as a fraction in its simplest form.

(a) $\frac{11}{12} - \frac{1}{3}$

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

(b) $\frac{1}{4} \div \frac{11}{13}$

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

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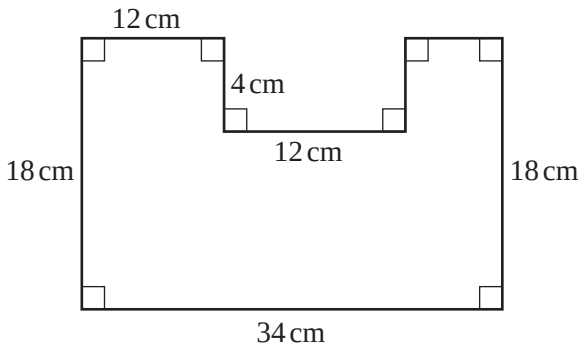
16 **(a)** Solve the equation $5(x - 3) = 21$.

Answer(a) $x =$ ..... [2]

(b) Make x the subject of the equation $y = 3x - 2$.

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

17



NOT TO SCALE

For the shape above, work out

(a) the perimeter,

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

(b) the area.

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

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18 **(a)** Find the value of $7p - 3q$ when $p = 8$ and $q = -5$.

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

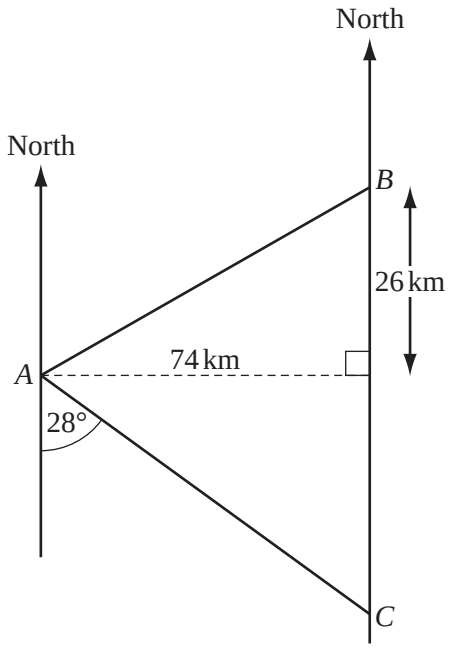
(b) Factorise completely.

$3uv + 9vw$

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

19

For Examiner's Use



(a) Work out the bearing of A from C.

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

(b) Calculate the distance AB.

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

20 **(a)** Colin has some seeds.
The probability a seed will grow is 0.85.

Find the probability that a seed will **not** grow.

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

(b) Richard grows flowers.
Some of his flowers are chosen at random.
The colours are recorded in the table below.

Colour of flower	Frequency	Relative Frequency
Red	20	0.16
Blue	15	
Yellow	35	
Other	55	

(i) Complete the table to show the relative frequency of each colour. [2]

(ii) Richard grows 800 flowers in total.

Estimate how many of these flowers are red.

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

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