UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

2282449673

MATHEMATICS **0581/12**

Paper 1 (Core) **October/November 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 **11** printed pages and **1** blank page.

For Examiner's Use

1 Work out $\frac{3}{7} \times \frac{5}{8}$.

Give your answer as a fraction.

Answer ..... [1]

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2 Amisi travelled from Johannesburg to Cairo.
She changed 500 Egyptian pounds (EGP) to South African rand (ZAR) when the exchange rate was 1 EGP = 1.24 ZAR.

Calculate the amount she received.

Answer ..... ZAR [1]

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3 Write the following numbers correct to one significant figure.

(a) 7682

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

(b) 0.07682

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

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4 Mars is ninety-one million, seven hundred thousand kilometres from Earth.

(a) Write this number in figures.

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

(b) Write your answer to **part (a)** in standard form.

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

For Examiner's Use

5 A bowl of fruit contains only 8 peaches, 5 oranges and 6 apples.
One piece of fruit is chosen at random.

Write down the probability that it is

(a) an orange,

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

(b) **not** a peach.

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

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6 The formula for changing a temperature in Celsius to a temperature in Fahrenheit is $F = 1.8C + 32$.

Make C the subject of the formula.

Answer $C =$ ..... [2]

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7 $\mathbf{a} = \begin{pmatrix} 4 \\ -1 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -2 \\ -3 \end{pmatrix}$

Work out $\mathbf{a} + 3\mathbf{b}$.

Answer $\begin{pmatrix} \\ \end{pmatrix}$ [2]

For Examiner's Use

8 Work out.

(a) $4 - 5 - 6$

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

(b) $\frac{-8}{-2}$

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

---

9 Patrick buys some bananas for \$35.
He sells all the bananas for \$40.60.

Calculate his percentage profit.
Show all your working.

Answer ..... % [3]

10

12 13 14 15 16 17 18

From the list of numbers, write down

(a) a factor of 36,

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

(b) a multiple of 8,

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

(c) a prime factor of 52.

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

For Examiner's Use

11 An athlete runs 1500 metres in 4 minutes.

Calculate her average speed in

(a) metres per minute,

Answer(a) ..... m/min [1]

(b) kilometres per hour.

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

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12 In a traffic survey of 125 cars the number of people in each car was recorded.

Number of people in each car	1	2	3	4	5
Frequency	50	40	10	20	5

Find

(a) the range,

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

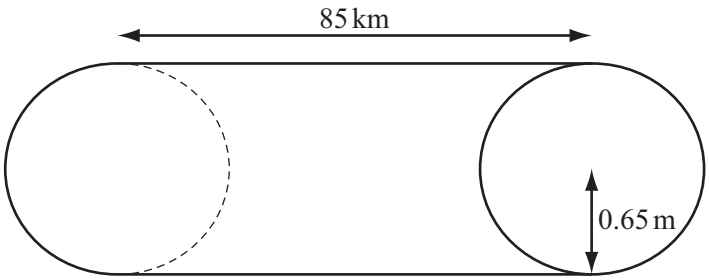
(b) the median,

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

(c) the mode.

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

13



NOT TO SCALE

A water pipeline in Australia is a cylinder with **radius** 0.65 **metres** and length 85 **kilometres**.

Calculate the volume of water the pipeline contains when it is full.
Give your answer in cubic metres.

Answer ..... m^3 [3]

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14 A shop is open during the following hours.

	Monday to Friday	Saturday	Sunday
Opening time	0645	0730	0845
Closing time	1730	1730	1200

(a) Write the closing time on Saturday in the 12-hour clock time.

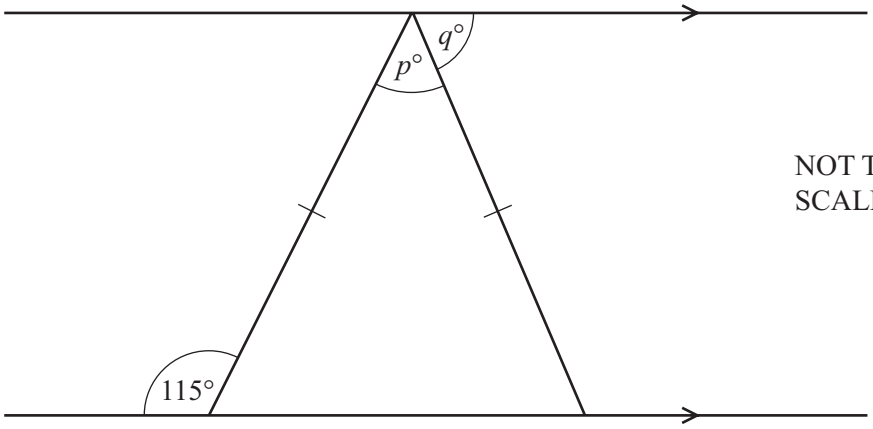
Answer(a) ..... [1]

(b) Calculate the total number of hours the shop is open in one week.

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

For Examiner's Use

15 The diagram shows an isosceles triangle between two parallel lines.



Calculate

(a) the value of p,

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

(b) the value of q.

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

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16 Musa borrows \$600 for 2 years at a rate of 7.5% per year compound interest.
At the end of the 2 years she repays the amount owing in full.

Calculate the total amount she has to repay.
Give your answer correct to the nearest dollar.

Answer \$ ..... [3]

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17 **(a)** Factorise completely.

$$6x^2 - 8xy$$

For Examiner's Use

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

(b) Simplify the following expression.

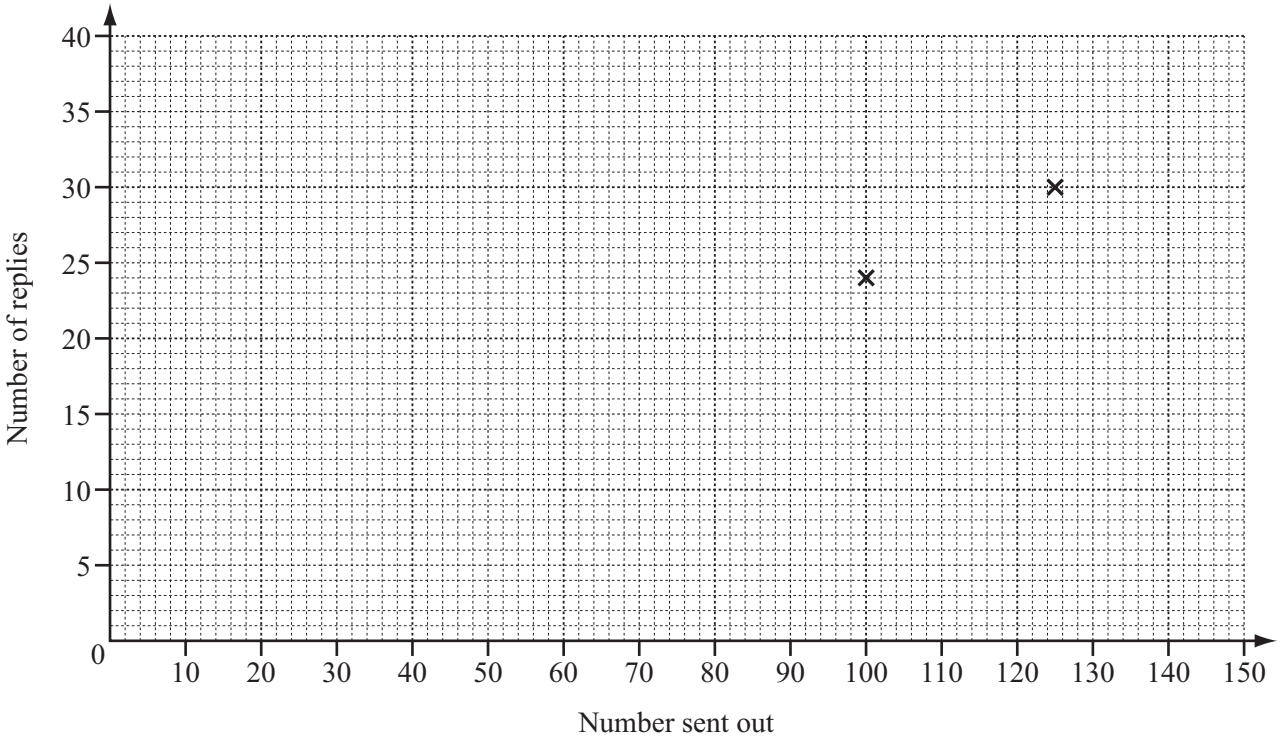
$$28a^5 \div 4a^{-2}$$

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

18 A company sends out ten different questionnaires to its customers.
The table shows the number sent and replies received for each questionnaire.

For Examiner's Use

Questionnaire	A	B	C	D	E	F	G	H	I	J
Number sent out	100	125	150	140	70	105	100	90	120	130
Number of replies	24	30	35	34	15	25	22	21	30	31



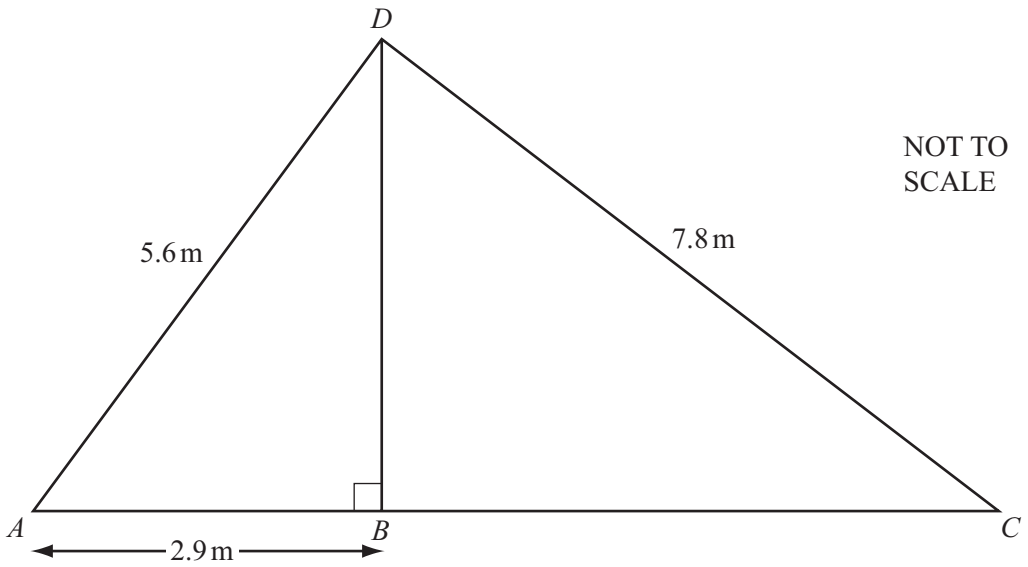
(a) Complete the scatter diagram for these results.
The first two points have been plotted for you. [2]

(b) Describe the correlation between the two sets of data.

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

(c) Draw the line of best fit. [1]

19



(a) Calculate *BD*.

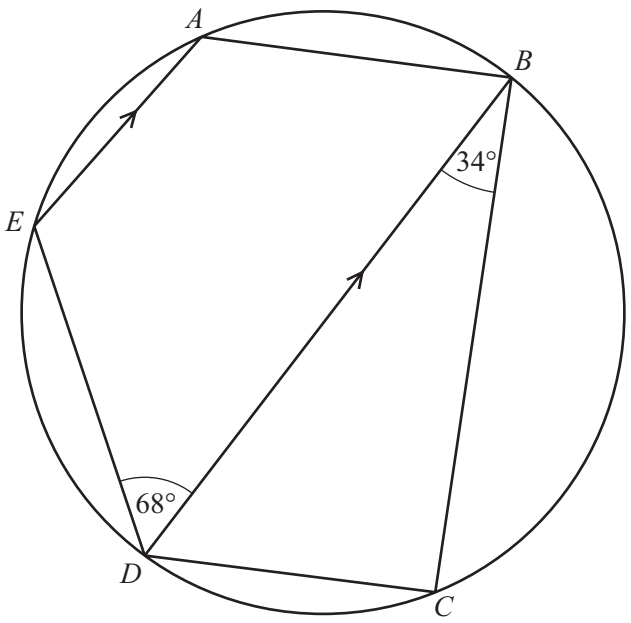
Answer(a) BD = ... m [3]

(b) $DC = 7.8\,\text{m}$.

Use trigonometry to calculate angle *BCD*.

Answer(b) Angle *BCD* = ... [2]

20



NOT TO SCALE

The points A, B, C, D and E lie on a circle with diameter BD.
AE is parallel to BD.
Angle $BDE = 68°$ and angle $DBC = 34°$.

(a) Give the reason why angle BCD is 90°.

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

(b) Find

(i) angle BDC,

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

(ii) angle DEA.

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

(c) Find the sum of the angles of the pentagon $ABCDE$.

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

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