



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

| CANDIDATE NAME | | | | |
|-------------------|--|---------------------|--|--|
| CENTRE NUMBER | | CANDIDATE NUMBER | | |



MATHEMATICS 0580/12

Paper 1 (Core) October/November 2012

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator Geometrical instruments

Mathematical tables (optional) 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.

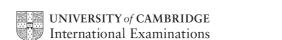
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

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.



| 1 | Work out $\frac{3}{7} \times \frac{5}{8}$. |
|---|---|
| | Give your answer as a fraction. |
| | |
| | <i>Answer</i> [1] |
| 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. |
| | |
| | |
| | AnswerZAR [1] |
| 3 | Write the following numbers correct to one significant figure. |
| | (a) 7682 |
| | Answer(a)[1] |
| | (b) 0.07682 |
| | Answer(b) [1] |
| 4 | Mars is ninety-one million, seven hundred thousand kilometres from Earth. |
| | (a) Write this number in figures. |
| | $Answer(a) \qquad \qquad [1]$ |
| | (b) Write your answer to part (a) in standard form. |
| | Answer(b)[1] |
| | Answer(b) [1] |

| 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] | | | | | | |
| 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. | | | | | | |
| | $Answer C = \underline{\qquad} [2]$ | | | | | | |
| 7 | $\mathbf{a} = \begin{pmatrix} 4 \\ -1 \end{pmatrix} \qquad \qquad \mathbf{b} = \begin{pmatrix} -2 \\ -3 \end{pmatrix}$ Work out $\mathbf{a} + 3\mathbf{b}$. | | | | | | |
| | Answer $\left(\begin{array}{c} \end{array}\right)$ [2] | | | | | | |
| | | | | | | | |

| 8 | Work out. (a) $4-5-6$ (b) $\frac{-8}{-2}$ | Answer(a) [1] Answer(b) [1] | For Examiner's Use |
|----|--|------------------------------|--------------------------|
| 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] | |
| | | Allswer | |
| 10 | 12 13 14 15 From the list of numbers, write down (a) a factor of 36, | 16 17 18 | |
| 10 | From the list of numbers, write down | | |
| 10 | From the list of numbers, write down (a) a factor of 36, | 16 17 18 | |

| 11 | An | athlete runs 1500 metres in 4 mi | nutes. | | | | | |
|----|-----|-------------------------------------|---------------|----------------|---------------|---|-------|-----|
| | Ca | lculate her average speed in | | | | | | |
| | (a) | metres per minute, | | | | | | |
| | (b) | kilometres per hour. | | Ans | wer(a) | ••••••••••••••••••••••••••••••••••••••• | m/min | [1] |
| | | | | Ans | wer(b) | | km/h | [2] |
| 12 | In | a traffic survey of 125 cars the nu | ımber of peoj | ole in each ca | ar was record | ed. | | |
| | | Number of people in each car | 1 | 2 | 3 | 4 | 5 | |
| | | Frequency | 50 | 40 | 10 | 20 | 5 | |
| | Fin | d | | | | | | |
| | (a) | the range, | | | | | | |
| | | | | Ans | wer(a) | | | [1] |
| | (b) | the median, | | | | | | |
| | | | | | | | | |
| | | | | Ans | wer(b) | | | [1] |
| | (c) | the mode. | | | | | | |
| | | | | Ans | wer(c) | | | [1] |
| | | | | | | | | |

13

For Examiner's Use

| - | ◄ | 85 km | - | |
|---|---|-------|--------|-----------------|
| | | | 0.65 m | 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.

| | 2 | |
|--------|----------------|-----|
| Answer | m ³ | [3] |
| | | |

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 c | losing time of | n Saturday in | the 12- | hour clock | time |
|-----|-------------|----------------|---------------|---------|------------|------|
|-----|-------------|----------------|---------------|---------|------------|------|

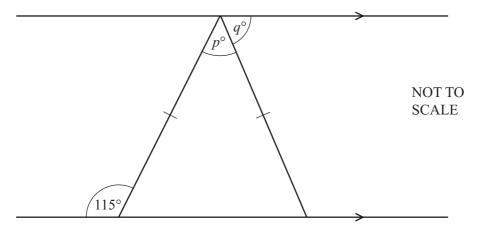
| Answer(a) | Г1 |
|-----------|----|
| Angweriai | |

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

Answer(b) h [2]

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

For Examiner's Use



Calculate

(a) the value of p,

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

(b) the value of q.

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

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.

| 4 | L 2 |
|------------|--------------------|
| Answer \$ | 1.5 |
| 1111011 €1 | L ⁻ |

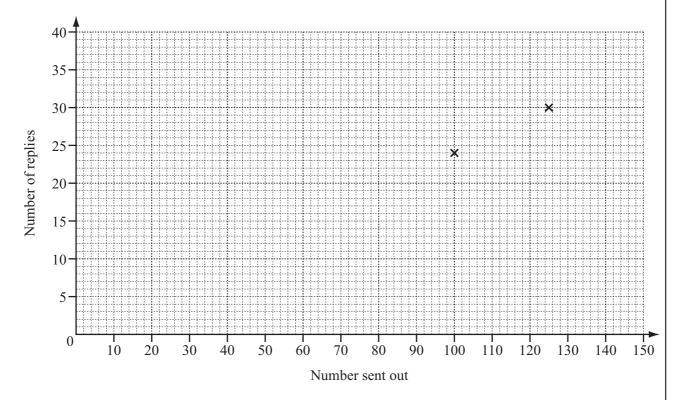
| 17 | (a) | Factorise completely. | $6x^2 - 8xy$ | | |
|----|------------|-----------------------------|----------------------|-----------|---------|
| | | | | Answer(a) | [2] |
| | (b) | Simplify the following expr | ession. | | |
| | | | $28a^5 \div 4a^{-2}$ | | |
| | | | | | |
| | | | | | |
| | | | | 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 | В | С | D | Е | F | G | Н | 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]

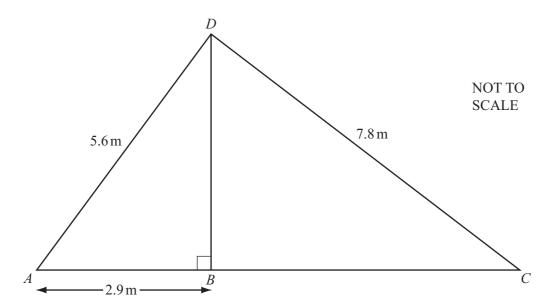
(b) Describe the correlation between the two sets of data.

Answer(b) [1]

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

19

For Examiner's Use



(a) Calculate BD.

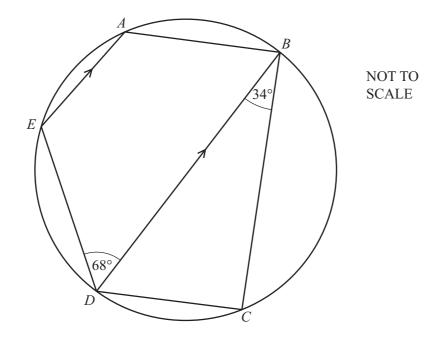
(b) $DC = 7.8 \,\mathrm{m}$.

Use trigonometry to calculate angle *BCD*.

Answer(b) Angle BCD = [2]

20

For Examiner's Use



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

| (a) | Give the reason why angle BCD is 90° . | | | | | | | | |
|-----|---|---------|-----|--|--|---------------|--|-----|--|
| | Ans | swer(a) | | | | | | [1] | |
| (b) | Fine | d | | | | | | | |
| | (i) | angle B | DC, | | | | | | |
| | (ii) | angle D | EA. | | | Answer(b)(i) | | [1] | |
| | | | | | | Answer(b)(ii) | | [1] | |

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

Answer(c) [2]

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.