



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

| CANDIDATE NAME | | | | | |
|-------------------|--|--|------------------|--|--|
| CENTRE NUMBER | | | NDIDATE JMBER | | |

0580/12 **MATHEMATICS**

Paper 1 (Core) October/November 2011

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator

> Mathematical tables (optional) 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.



International Examinations



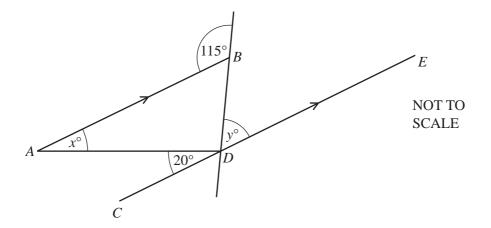
| 1 | The temperature on Monday is 3 °C On Tuesday it is 5 °C lower. | | | | | | |
|---|---|-------------|--------------|----------------|--------|--|---------|
| | Find the temperature on Tuesday. | | | | | | |
| | | | | Answer | | ······································ | C [1] |
| 2 | Joseph changed 120 New Zealand owas $NZ\$1 = A\0.7 | | Z\$) into Au | stralian do | ollars | s (A\$) when the exchang | ge rate |
| | Calculate the exact amount he recei | ved. | | | | | |
| | | | | | | | |
| | | | | Answer A | \$ | | [1] |
| 3 | A bus leaves a port every 15 minute. The last bus leaves at 1730. | s, starting | at 09 00. | | | | |
| | How many times does a bus leave the | ne port dui | ring one da | y? | | | |
| | | | | | | | |
| | | | | Answ | ver | | [2] |
| 4 | Write the following in order of size | starting v | with the sma | allest. | | | |
| | $\frac{9}{8}$ 1. | 2 | 115% | $1\frac{1}{6}$ | | | |
| | | | | | | | |
| | | Answer | | < | | < < | [2] |
| | | | | | | | |

| 5 | Mortar is a mixture of cement, sand and lime in the ratio | 0 |
|---|---|---------------|
| | cement: sand: $lime = 1:5:2$. | |
| | Calculate how much sand there is in a 12 kg bag of this | mortar. |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | Answer kg [2] |
| 6 | Find the cube root of 96. Give your answer correct to 2 decimal places. | |
| | | Answer[2] |
| 7 | Write these numbers in standard form. | |
| | (a) 734 000 000 | |
| | | |
| | | Answer(a) [1] |
| | (b) 0.000587 | |
| | | |
| | | Answer(b)[1] |
| | | 11115 Wer (8) |

| 8 | The population, P , of Brunei in 2008 was 400. Complete the statement about the value of P . | 000 correc | et to the nearest | ± 1000. | |
|---|--|------------|-------------------|--------------|-----|
| | | Answer | ••••• | ≤ <i>P</i> < | [2] |
| 9 | Use your calculator to find the value of (a) $3^0 \times 2.5^2$, (b) 2.5^{-2} . | | Answer(a) | | [1] |
| | (b) 2.3 . | | Answer(b) | | [1] |

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For Examiner's Use



In the diagram, *AB* is parallel to *CDE*. Find the value of

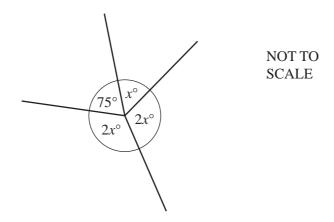
(a) *x*,

| Answer(a) | x = | [1] | |
|-----------|-----|-----|--|
| | | | |

(b) *y*.

$$Answer(b) y =$$
 [2]

11



(a) For the diagram above, write down an equation in x.

(b) Solve your equation.

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

| 12 | Jiwan incorrectly wrote | $1 + \frac{1}{-} +$ | <u>1</u> - | + 1 = | = 1 ³ |
|----|-------------------------|---------------------|------------|-------|------------------|
| | , , , , | 2 | 3 | 4 | 9 |

Show the correct working and write down the answer as a mixed number.

| 1 100111011 | L51 |
|-------------|-----|
| Answer | 101 |
| | |

13 Solve these simultaneous equations.

$$5x - 2y = 17$$
$$2x + y = 5$$

$$Answer x =$$

$$y = [3]$$

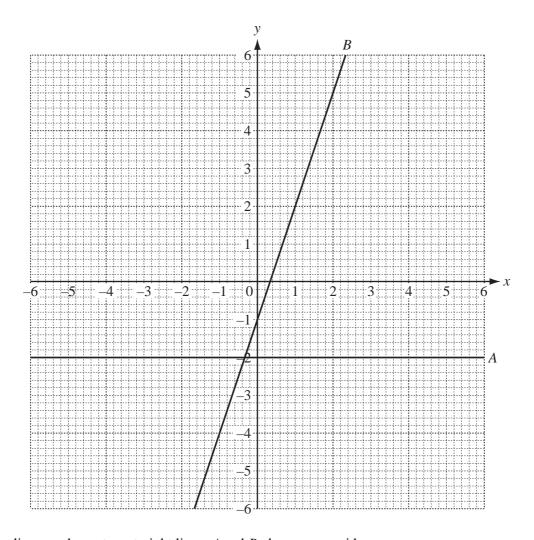
m/s [3]

| | e the table for her results. | | | |
|----------------|------------------------------|---------------------------------------|--------------------|----|
| | Colour | Frequency | Relative frequency | |
| | Red | 19 | | |
| | Yellow | | | |
| | Blue | 28 | | |
| | | • | | [2 |
| (b) Gita pick | as a counter at random from | om the same bag. | | |
| Which c | olour counter is she most | likely to pick? | | |
| | | A | nswer(b) | [1 |
| | | | | |
| A cruise ship | travels at 22 knots. | | | |
| | 52 kilometres per hour.] | | | |
| L | speed into metres per seco | ond | | |
| Convert this s | poed into inches per seek | , , , , , , , , , , , , , , , , , , , | | |
| Convert this s | | | | |
| Convert this s | | | | |
| Convert this s | | | | |

| 16 | (a) | Wri | ite down a common multiple of 8 and 14. | |
|----|-----|------|---|--|
| | | | | |
| | | | | |
| | | | Answer(a)[1] | |
| | (b) | (i) | Complete the list of factors of 81. | |
| | | | | |
| | | | | |
| | | | 1,, ,, , 81 [2] | |
| | | (ii) | Write down the prime factor of 81. | |
| | | | | |
| | | | | |
| | | | <i>Answer(b)</i> (ii)[1] | |

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For Examiner's Use



The diagram shows two straight lines, A and B, drawn on a grid.

(a) Write down the equation of line A.

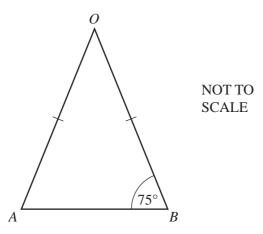
| [1] | |
|-----|---|
| | 1 |

- **(b)** The equation of line B is y = 3x 1.
 - (i) Draw a line parallel to line B that passes through the point (0, 2). [1]
 - (ii) Write down the equation of your line in the form y = mx + c.

$$Answer(b)(ii) y = [2]$$

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For Examiner's Use

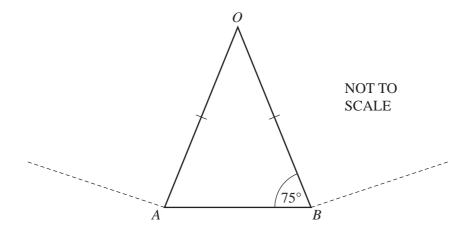


(a) Triangle AOB is isosceles. OA = OB.

Calculate angle *AOB*.

$$Answer(a)$$
 Angle $AOB =$ [1]

(b)



AB is one side of a regular polygon with n sides.

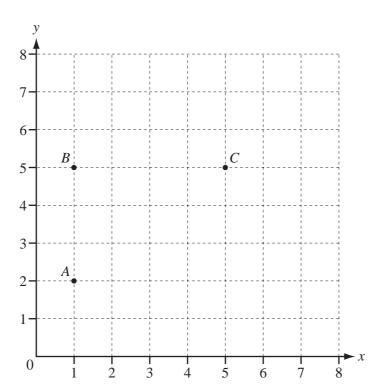
(i) Calculate n.

$$Answer(b)(i) n = [2]$$

(ii) Find the size of an interior angle of this polygon.

Answer(b)(ii) [1]

19 (a)



Three vertices of the quadrilateral ABCD are shown in the diagram.

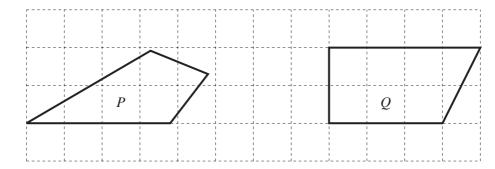
(i) Write down the co-ordinates of the point B.

| Answer(a)(i) (| |) [1] |
|--------------------|---------------------------------------|-------|
| 11113 WCI (U)(1) (| · · · · · · · · · · · · · · · · · · · | / L*J |

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- (ii) On the grid, plot and label the point D so that quadrilateral ABCD has rotational symmetry of order 2. [1]
- (iii) Draw the quadrilateral *ABCD*.

 Draw in all the lines of symmetry on your quadrilateral. [1]
- **(b)** Write down the mathematical names of these quadrilaterals.



Answer(b) P Q [2]

Question 20 is printed on the next page.

20 In a survey of 60 cars, the type of fuel that they use is recorded in the table below.

Each car only uses one type of fuel.

(c) Calculate the probability that a car chosen at random uses Electricity.

Write your answer as a fraction in its simplest form.

| For |
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| Examiner's |
| Use |

| Each car only uses one type of fuel. | | | | | |
|--------------------------------------|--|--------|-----------------|-------------|-----|
| | Petrol | Diesel | Liquid Hydrogen | Electricity | |
| | 40 | 12 | 2 | 6 | |
| (a) Write down the mode. | | | | | |
| | | | Answer(a) | | [1] |
| (b) | (b) Olav drew a pie chart to illustrate these figures. | | | | |
| | Calculate the angle of the sector for Diesel. | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | Answer(b) | | [2] |

Answer(c) [2]

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