UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

5352163886

MATHEMATICS **0580/12**

Paper 1 (Core) **October/November 2011**

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 **12** printed pages.

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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 dollars (NZ$) into Australian dollars (A$) when the exchange rate was

NZ$1 = A$0.796 .

Calculate the exact amount he received.

Answer A$ ..... [1]

---

3 A bus leaves a port every 15 minutes, starting at 09 00.
The last bus leaves at 17 30.

How many times does a bus leave the port during one day?

Answer ..... [2]

---

4 Write the following in order of size, starting with the smallest.

$\frac{9}{8}$ 1.2 115% $1\frac{1}{6}$

Answer ..... < ..... < ..... < ..... [2]

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5 Mortar is a mixture of cement, sand and lime in the ratio

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]

For Examiner's Use

8 The population, P, of Brunei in 2008 was 400 000 correct to the nearest 1000.

Complete the statement about the value of P.

Answer ..... $\leqslant P <$ ..... [2]

---

9 Use your calculator to find the value of

(a) $3^0 \times 2.5^2$,

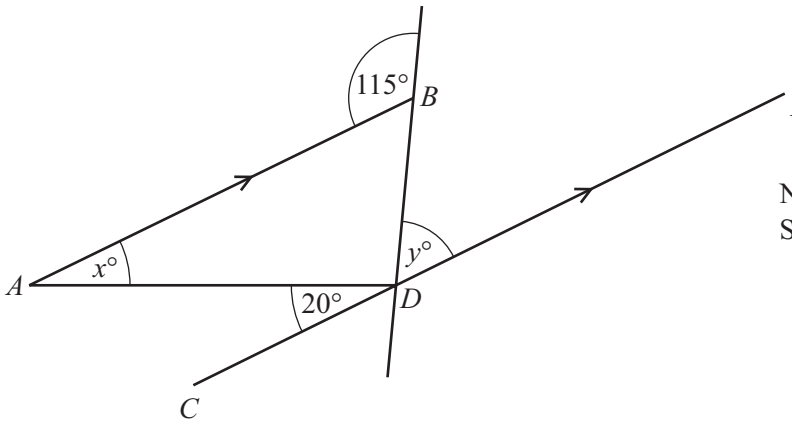
Answer(a) ..... [1]

(b) 2.5^{-2}.

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

10

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

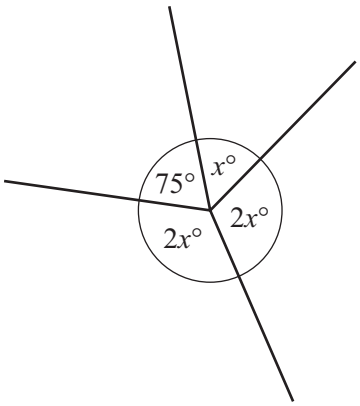
(a) x,

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

(b) y.

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

11



NOT TO SCALE

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

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

(b) Solve your equation.

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

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12 Jiwan incorrectly wrote $1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} = 1\frac{3}{9}$.

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

Answer ..... [3]

---

13 Solve these simultaneous equations.

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

Answer $x =$ .....

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

For Examiner's Use

14 A bag contains only red, yellow and blue counters.
Bashira picks a counter at random from the bag, records its colour, and puts it back in the bag.
She does this 60 times.

(a) Complete the table for her results.

Colour	Frequency	Relative frequency
Red	19	
Yellow		
Blue	28	

[2]

(b) Gita picks a counter at random from the same bag.

Which colour counter is she most likely to pick?

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

---

15 A cruise ship travels at 22 knots.

[1 knot is 1.852 kilometres per hour.]

Convert this speed into metres per second.

Answer ..... m/s [3]

For Examiner's Use

16 **(a)** Write down a common multiple of 8 and 14.

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

(b) **(i)** Complete the list of factors of 81.

1, ... , ... , ... , 81 [2]

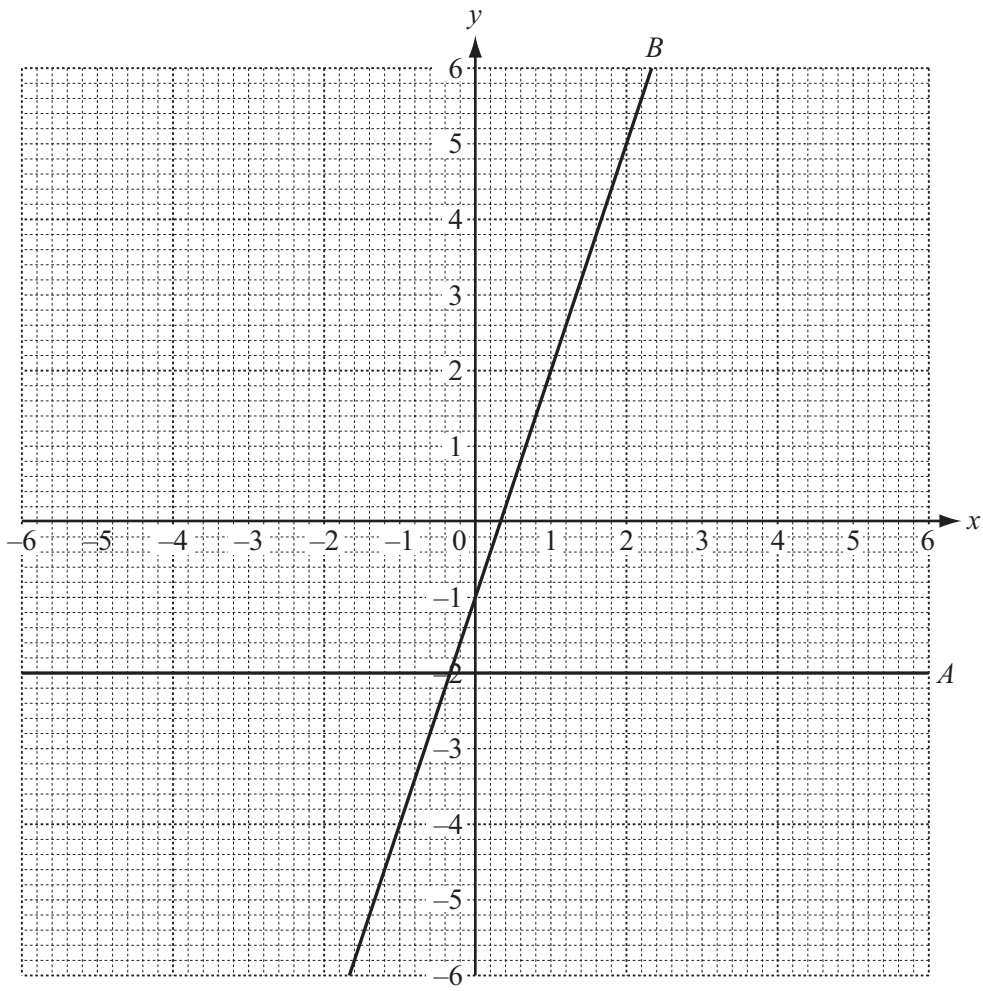
(ii) Write down the prime factor of 81.

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

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

(a) Write down the equation of line A.

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

(b) The equation of line B is $y = 3x - 1$.

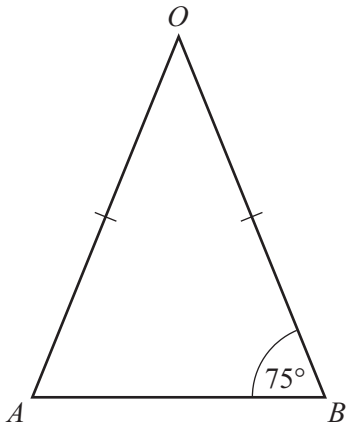
(i) Draw a line parallel to line B that passes through the point (0, 2). [1]

(ii) Write down the equation of your line in the form $y = mx + c$.

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

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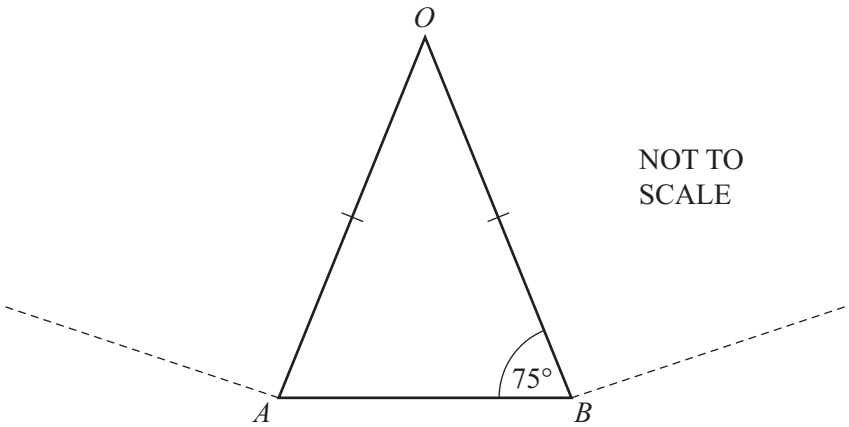
NOT TO SCALE

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

Calculate angle AOB.

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

(b)



NOT TO SCALE

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

(i) Calculate n.

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

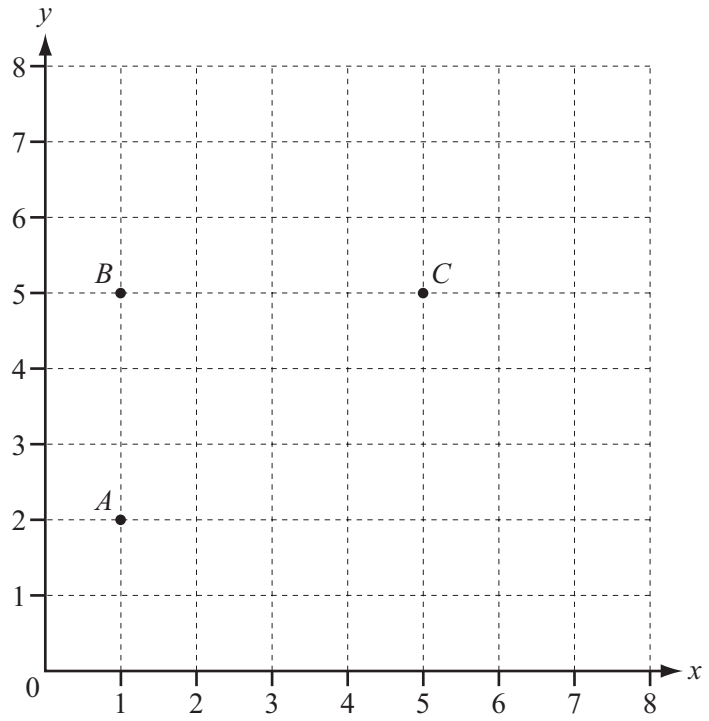
(ii) Find the size of an interior angle of this polygon.

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

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19 (a)



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

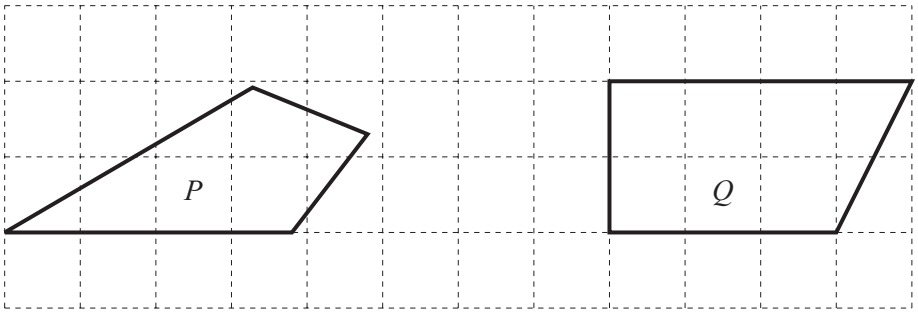
(i) Write down the co-ordinates of the point *B*.

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

(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.

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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.

Petrol	Diesel	Liquid Hydrogen	Electricity
40	12	2	6

(a) Write down the mode.

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

(b) Olav drew a pie chart to illustrate these figures.

Calculate the angle of the sector for Diesel.

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

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

Write your answer as a fraction in its simplest form.

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

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