Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

9883604560

MATHEMATICS **0580/11**

Paper 1 (Core) **October/November 2014**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
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 an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

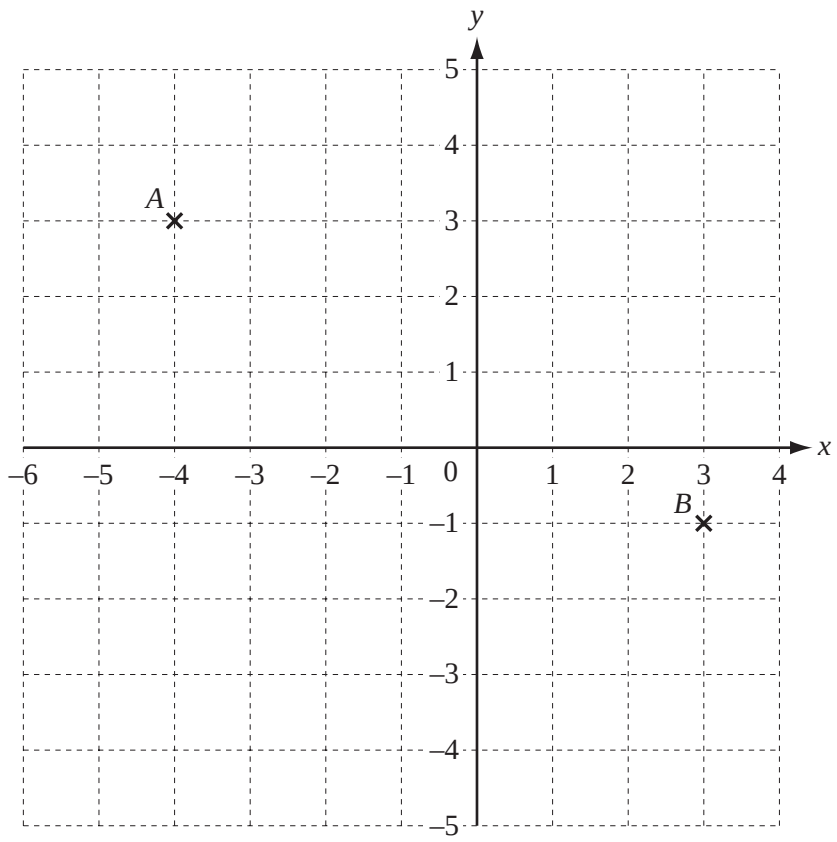
Answer **all** questions.
If working is needed for any question it must be shown below that question.
Electronic calculators should be used.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees 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.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **12** printed pages.

1



Points A and B are shown on the grid.

Write $\overrightarrow{AB}$ as a column vector.

Answer $\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

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2 Write 15.0782 correct to

(a) one decimal place,

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

(b) the nearest 10.

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

3

Z E B R A

Write down the letters in the word above that have

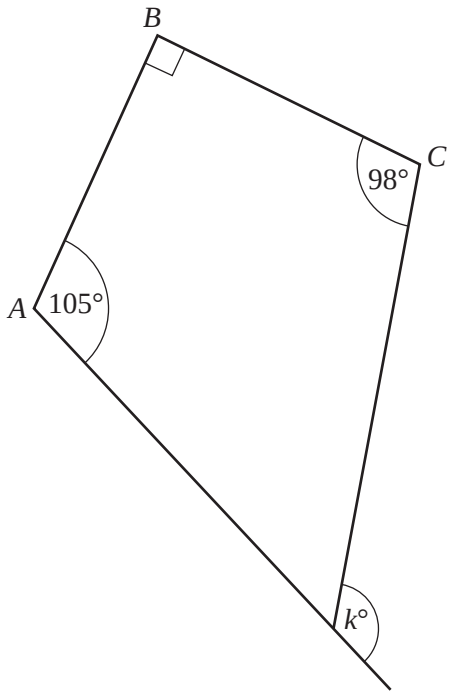
(a) exactly one line of symmetry,

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

(b) rotational symmetry of order 2.

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

4



NOT TO SCALE

In the diagram, all four lines are straight.
Angle $A = 105°$, angle $B = 90°$ and angle $C = 98°$.

Find the value of k.

Answer k = ... [2]

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5 These are the heights, correct to the nearest centimetre, of 12 children.

132 114 151 130 132 145 163 142 153 170 132 125

Find the median height.

Answer ..... cm [2]

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6 Write the following in order of size, smallest first.

π 3.14 $\frac{22}{7}$ 3.142 3

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

---

7 Without using a calculator, work out $\frac{1}{4} + \frac{1}{6}$.

Write down all the steps in your working and give your answer as a fraction in its simplest form.

Answer ..... [2]

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8 Factorise completely.

$$8w^2x - 12wy$$

Answer ..... [2]

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9 A cylinder has radius 3.6 cm and height 16 cm.

Calculate the volume of the cylinder.

Answer ..... cm^3 [2]

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10 Cheryl recorded the midday temperatures in Seoul for one week in January.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Temperature (°C)	–4	–5	–3	–11	–8	–3	–1

(a) Write down the mode.

Answer(a) ..... °C [1]

(b) On how many days was the temperature lower than the mode?

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

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11 Simplify.

$10x - 15 - 6x + 8$

Answer ..... [2]

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12 **(a)** Write down a 2-digit odd number that is a factor of 182.

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

(b) Find all the prime factors of 182.

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

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13 **(a)** Write 2.8×10^2 as an ordinary number.

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

(b) Work out $2.5 \times 10^8 \times 2 \times 10^{-2}$.
Give your answer in standard form.

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

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14 To hire a bicycle it costs \$6 for each day, plus a fixed charge of \$15.

(a) Maria pays \$39 to hire a bicycle.

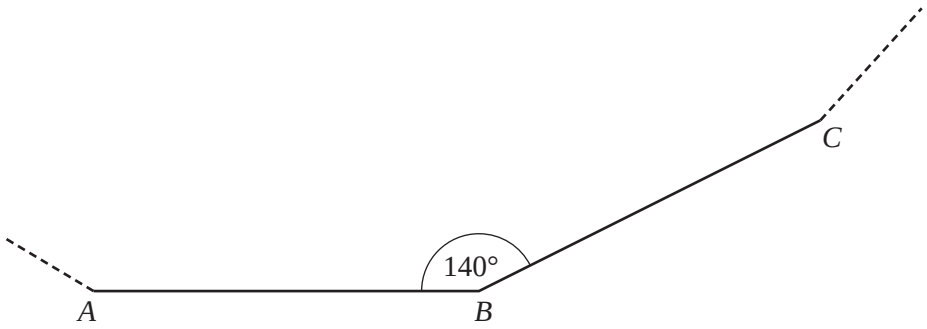
How many days does she hire it for?

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

(b) Write down a formula for the cost, C dollars, to hire a bicycle for d days.

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

15

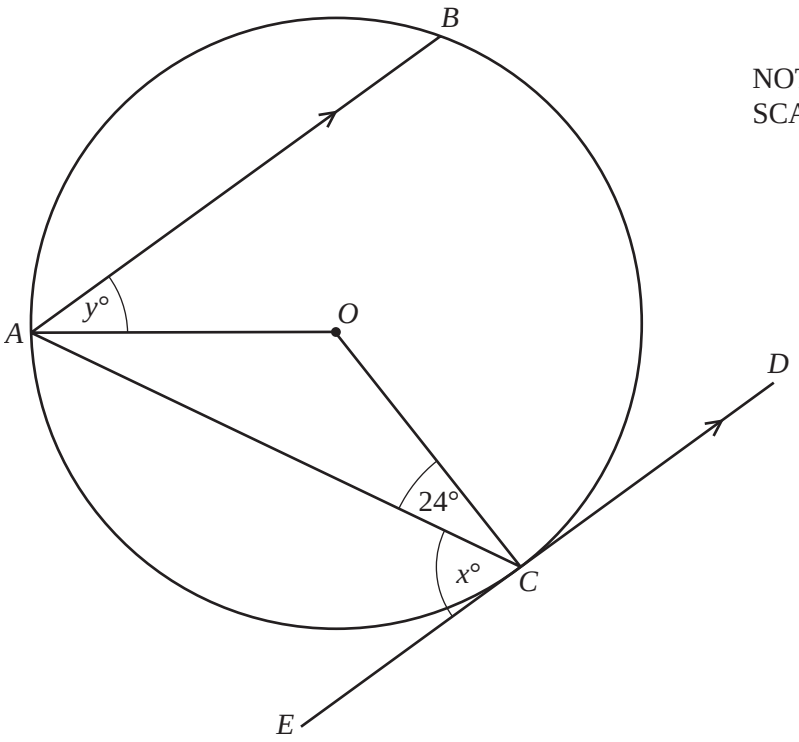


The diagram shows two sides, AB and BC, of a regular polygon.
Angle ABC = 140°.

Find the number of sides of this regular polygon.

Answer ..... [3]

16



The diagram shows a circle with centre O.
ED is a tangent to the circle at C.
AB is parallel to ED and angle $ACO = 24°$.

Find the value of

(a) x,

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

(b) y.

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

17 Dominic invests $850 at a rate of 3.5% per year compound interest.

Calculate the **total** amount he has after 3 years.

Answer $..... [3]

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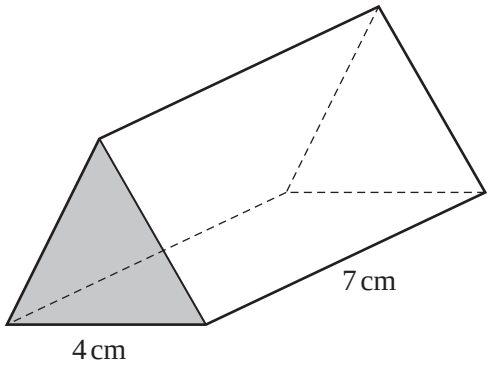
18 On a ship, the price of a gift is 24 euros (€) or $30.

What is the difference in the price on a day when the exchange rate is €1 = $1.2378?
Give your answer in dollars, correct to the nearest cent.

Answer $..... [3]

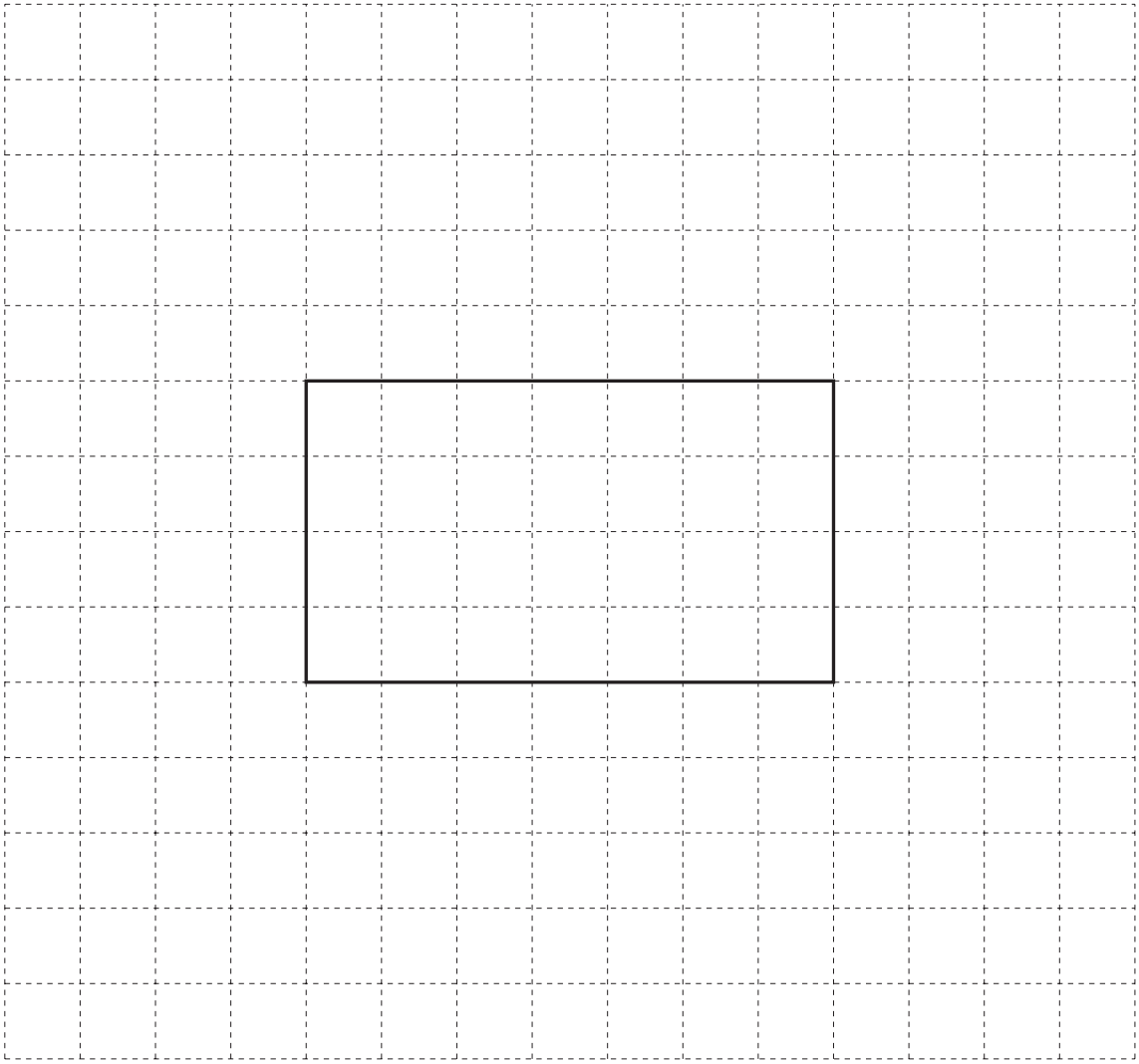
19



NOT TO SCALE

The diagram shows a prism.
The cross section is an equilateral triangle.

On the grid, draw an accurate net of the prism.
The base is drawn for you.



[3]

20 Solve the simultaneous equations.

$$5x + 2y = 16$$
$$3x - 4y = 7$$

Answer $x =$ .....

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

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21 **(a)** Find the value of $5x^2$ when $x = -4$.

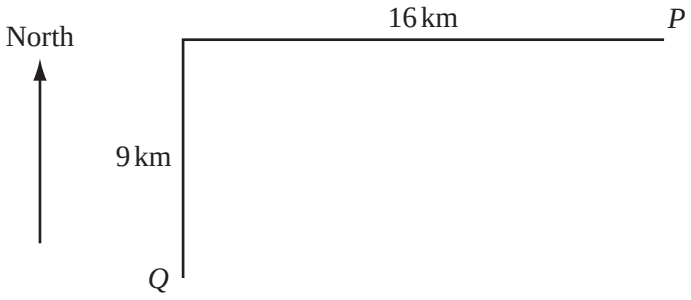
Answer(a) ..... [2]

(b) Make x the subject of the formula $y = 5x^2$.

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

Question 22 is printed on the next page.

22



The diagram shows the route of a ship that leaves a port, *P*.
It travels due west for 16 km and then changes course to due south for 9 km.

(a) Calculate the straight line distance *PQ*.

Answer(a) PQ = ... km [2]

(b) Use trigonometry to calculate the bearing of *P* from *Q*.

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