Centre Number	Candidate Number

Candidate Name _____

International General Certificate of Secondary Education
CAMBRIDGE INTERNATIONAL EXAMINATIONS

MATHEMATICS 0580/1, 0581/1

PAPER 1

MAY/JUNE SESSION 2002
1 hour

Candidates answer on the question paper.
Additional materials:
Electronic calculator
Geometrical instruments
Mathematical tables (optional)
Tracing paper (optional)

TIME 1 hour

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

If working is needed for any question it must be shown below that question.

INFORMATION FOR CANDIDATES

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.

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.

FOR EXAMINER'S USE

This question paper consists of 7 printed pages and 1 blank page.

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Local Examinations Syndicate
[Turn over

1 Work out $7 - 2 \times 4$.

Answer ..... [1]

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2 Write as a decimal

(a) $\frac{7}{20}$,

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

(b) 127%.

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

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3 Factorise completely $8y - 12ty$.

Answer ..... [2]

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4 Put one of the symbols $<$, $>$ or $=$ in each part to make these two statements correct,

(a) $\sqrt{0.0225}$ ..... 0.3×0.5, [1]

(b) 2.79^3 ..... 4.63^2. [1]

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5 A spoon can hold 5 ml of medicine.

(a) Write 5 ml in litres.

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

(b) Write your answer in standard form.

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

---

6 Hassan picks 24 kg of fruit.
He finds that 8% of the fruit is rotten.
Work out the mass of fruit which is rotten.

Answer ..... kg [2]

---

7 Work out $48k^{10} \div 24k^{8}$ giving your answer in its simplest form.

Answer ..... [2]

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8 The population, P, of a city is 280 000, to the nearest ten thousand. Complete the statement about P.

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

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9 In June 2000, one euro (€) was worth 0.59 British pounds (£).
Work out the value, in pounds, of a car which cost €12 800.
Give your answer to the nearest hundred pounds.

Answer £..... [3]

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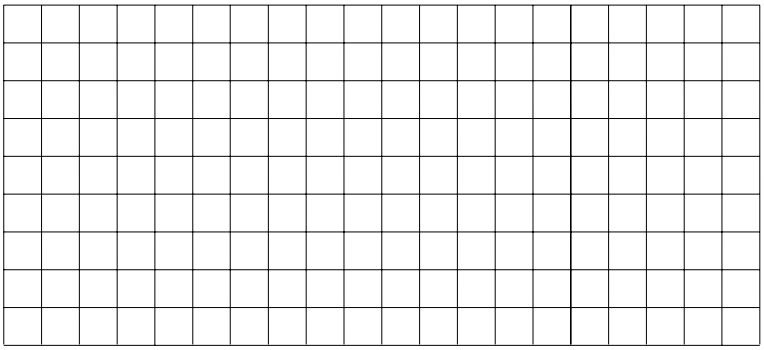
10 **(a)** Write down the name of the special quadrilateral which has rotational symmetry of order 2 but no lines of symmetry.

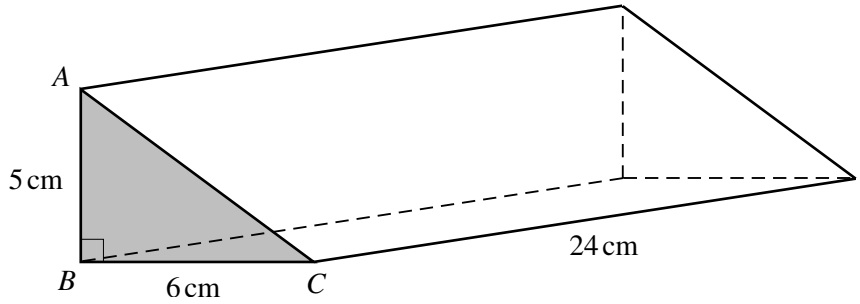
Answer (a) ..... [1]

(b) On the grid, draw a quadrilateral which has exactly one line of symmetry but no rotational symmetry.
Draw the line of symmetry on your diagram.



[2]

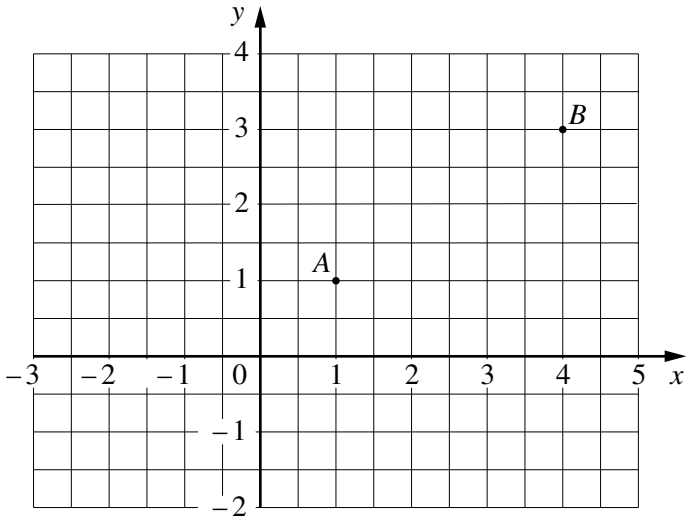
11



The diagram shows a triangular prism.
$AB = 5$ cm, $BC = 6$ cm and angle $ABC = 90°$. The prism has a length of 24 cm.
Calculate the volume of the prism.

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

12



In the diagram, A is the point (1,1) and B is the point (4,3).

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

Answer (a) $\overrightarrow{AB} = \begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(b) The point C is such that $\overrightarrow{BC} = 2\overrightarrow{BA}$.

(i) Draw $\overrightarrow{BC}$ on the diagram. [1]

(ii) Write down the coordinates of C.

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

---

13 Doreen cycles to her friend's home.
She leaves at 09 40 and arrives at 10 20.

(a) Write down the time taken

(i) in minutes,

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

(ii) as a fraction of an hour in its lowest terms.

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

(b) The distance Doreen cycles is 8.4 km.
Work out Doreen's average speed in km/h.

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

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14 **(a)** Six three-digit numbers can be made from the digits 1, 2 and 3 when each digit is used once.
One number is 231.
Write down all the other numbers.

Answer (a) 231, ... , ... , ... , ... , ... [2]

(b) One of the six numbers is picked from the above list at random.
Write down the probability that it is

(i) even,

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

(ii) a multiple of 5.

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

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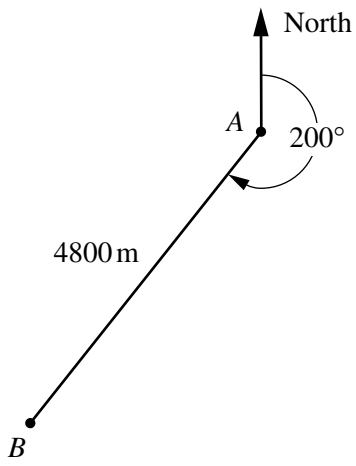
15 Solve the simultaneous equations $2c + 5d = 49$,
$3c + d = 15$.

Answer $c =$ .....

$d =$ ..... [4]

[Turn over

16



NOT TO SCALE

A railway line, between stations *A* and *B*, is straight and has a length of 4800 m.
The bearing of *B* from *A* is 200 °.
The point *P* is due east of *B* and due south of *A*.

(a) Complete the sketch above to show triangle *ABP*. [1]

(b) Calculate the length of AP.

Answer (b) AP = ... m [3]

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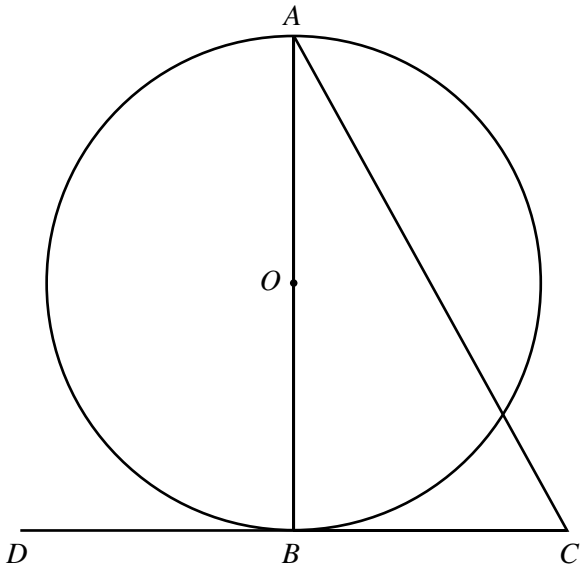


NOT TO SCALE

In the diagram, *AB* is a diameter of the circle, centre *O*.
DBC is a tangent at *B*.

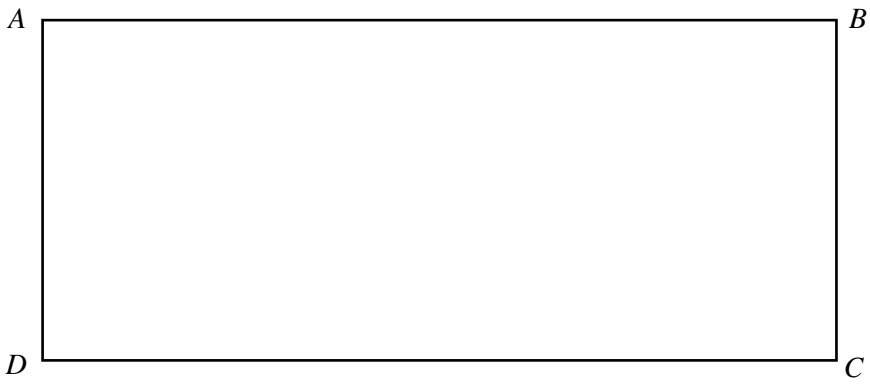
(a) Write down the size of angle *ABC*.

Answer (a) Angle *ABC* = ... [1]

(b) The angles *BAC* and *ACB* are in the ratio 5:7.
Work out the size of angle *BAC*.

Answer (b) Angle *BAC* = ... [3]

18



(a) On the diagram draw accurately the locus of points inside the rectangle which are

(i) 6 cm from *D*, [1]

(ii) equidistant from *AB* and *BC*. [2]

(b) Shade the region inside the rectangle containing points which are more than 6 cm from *D* and nearer to *AB* than to *BC*. [1]

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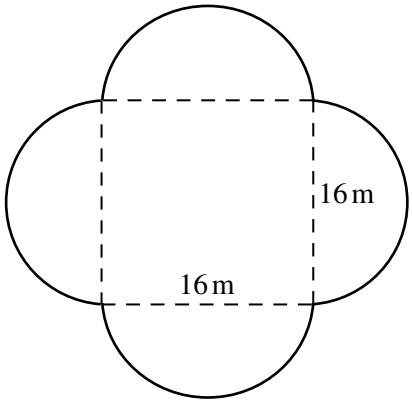

NOT TO SCALE

The diagram shows a garden.
It is made up of a square of side 16 m and four semicircles of radius 8 m.

Calculate **(a)** the perimeter of the garden,

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

(b) the area of the garden.

Answer (b) .....m^2 [3]

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