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0580/11

October/November 2009

1 hour

Additional Materials:	Electronic Calculator	Mathematical tables (optional)
	Geometrical Instruments	Tracing paper (optional)

The total of the marks for this paper is 56.

For Examiner's Use



[Turn over

- 1 Insert one pair of brackets to make the following equation correct.

$$2 \times 8 - 5 - 4 = 15$$

[1]

- 2 Write the following numbers in order starting with the smallest.

$$\frac{2}{7}$$

0.283

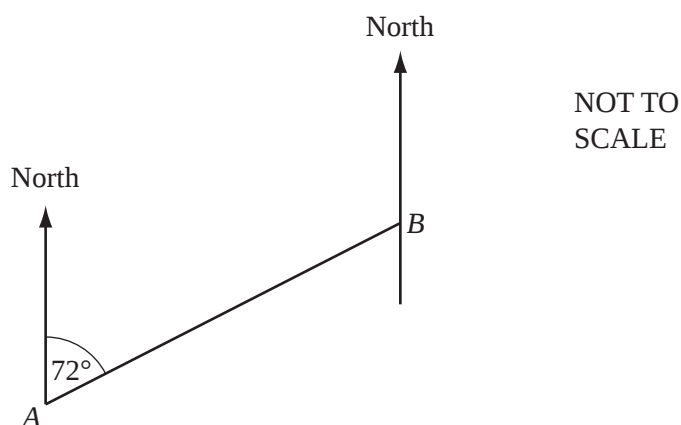
28%

Answer < < [1]

- 3 Find the volume of a cube with sides of 2.3 cm.

Answer cm³ [1]

4



The diagram shows the position of two airports, *A* and *B*.
The bearing of *B* from *A* is 072° .
Work out the bearing of *A* from *B*.

Answer [2]

- 5 The number of spectators, N , at a football match is 16 000, correct to the nearest thousand. Complete the statement for N in the answer space.

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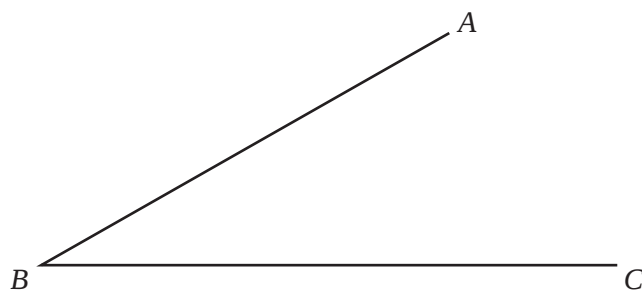
Answer $\leq N <$ [2]

- 6 Work out the value of $3\frac{3}{4} \times 1\frac{1}{7}$.

Show all your working and leave your answer as a fraction.

Answer [2]

7



Using a straight edge and compasses only, construct the locus of points which are equidistant from AB and from BC .

Show clearly all your construction arcs.

[2]

8

4

 $\sqrt{8}$ $\sqrt{25}$ $\frac{5}{2}$

0.3333

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From the list above, write down

(a) a prime number,

Answer(a) [1]

(b) an irrational number.

Answer(b) [1]

- 9 A train sets off at 11 53 on a journey to Mumbai.
The journey takes 2 hours 30 minutes.

(a) Write down the time when the train arrives in Mumbai.

Answer(a) [1]

(b) The distance to Mumbai is 235 kilometres.
Calculate the average speed of the train.

Answer(b) km/h [2]

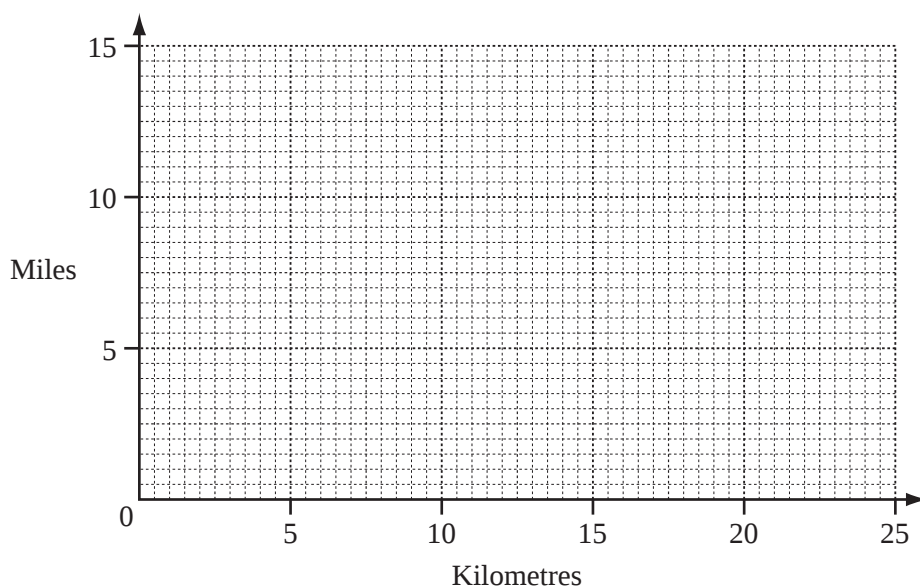
10 Solve the simultaneous equations

$$\begin{aligned} 5x - y &= 15, \\ 7x - 5y &= 3. \end{aligned}$$

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Answer $x =$
 $y =$ [3]

11

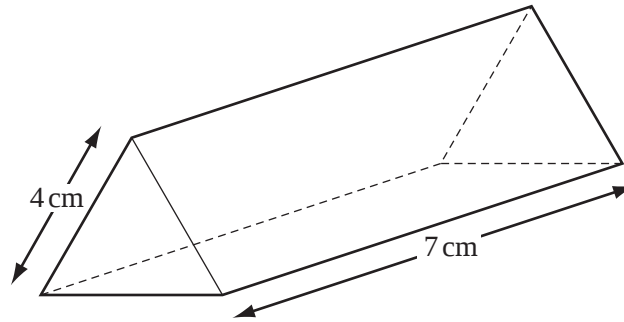


Distance can be measured in miles or kilometres. 24 kilometres is approximately equal to 15 miles.

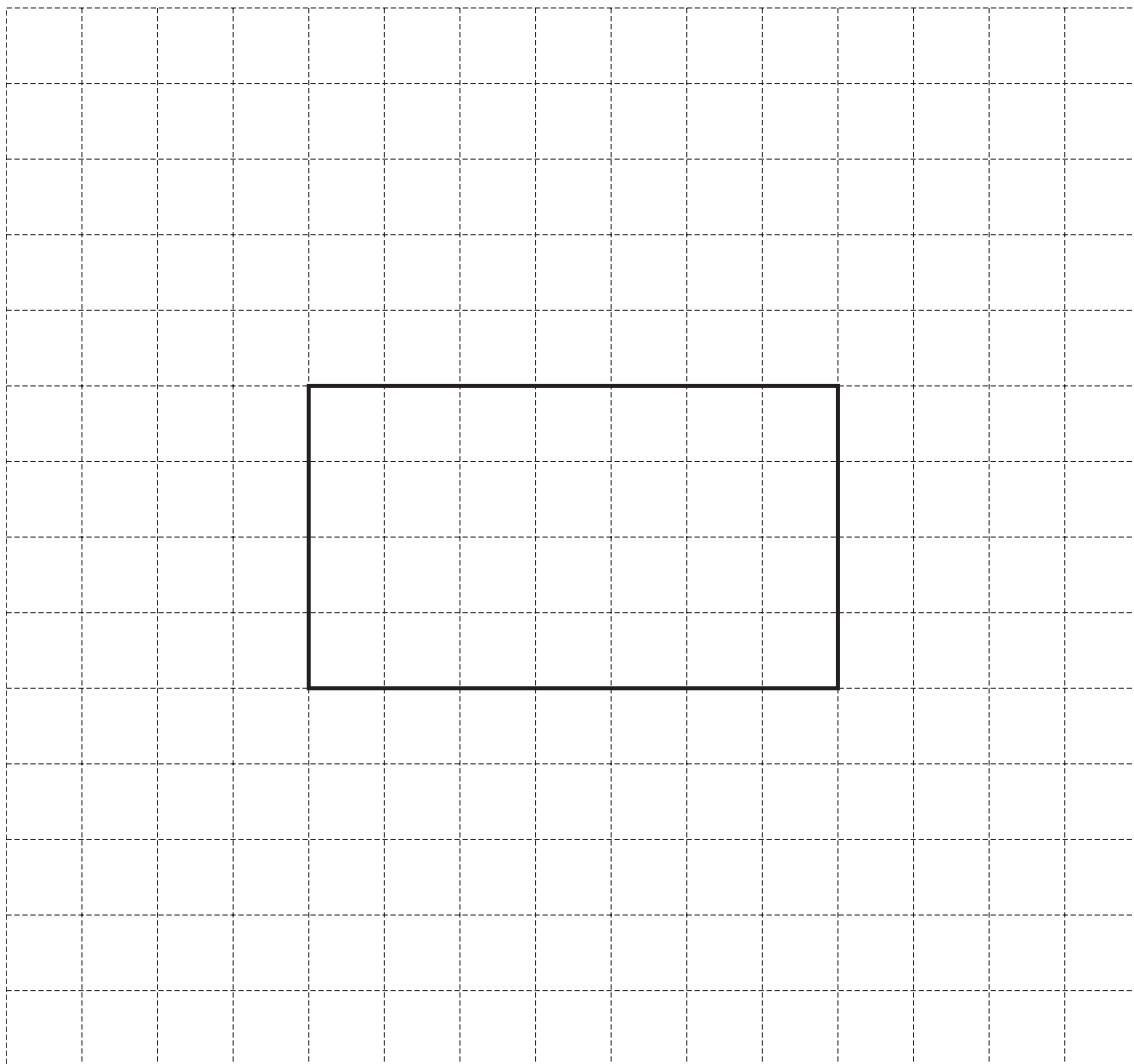
(a) Draw a straight line on the grid to show the conversion between kilometres and miles. [2]

(b) Use your graph to estimate the number of kilometres equal to 12 miles.

Answer (b) km [1]

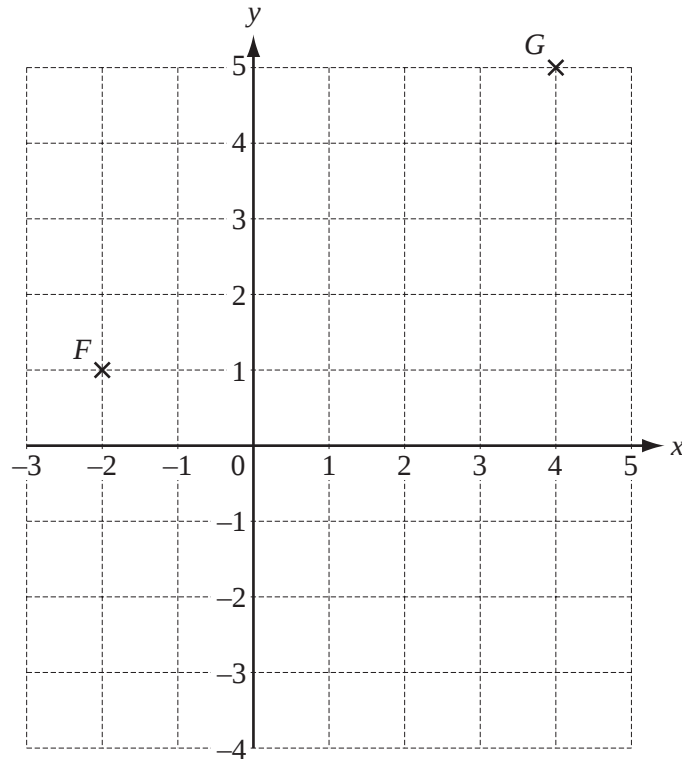
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The diagram shows a triangular prism of length 7 cm.
 The cross-section is an equilateral triangle of side 4 cm.
 Complete an **accurate** net of the prism.
 One rectangular face has been drawn for you.



[3]

13

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The points F and G are shown on the grid.

- (a) Write down the co-ordinates of the point F .

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

- (b) Write $\vec{FG}$ as a column vector.

Answer(b) $\vec{FG} = \begin{pmatrix} \\ \end{pmatrix}$ [1]

- (c) $\vec{GH} = \begin{pmatrix} -2 \\ -7 \end{pmatrix}$. Mark and label the point H on the grid. [1]

- 14 (a)** Find the value of p when $p^3 = -27$.

Answer(a) $p =$ [1]

- (b)** Find the value of q when $q^{-1} = \frac{1}{6}$.

Answer(b) $q =$ [1]

- (c)** Simplify $8s^2 \div 2s^{-1}$.

Answer(c) [2]

15

$$J = \frac{md}{3}$$

- (a)** Find the value of d when $J = 35$ and $m = 7$.

Answer(a) $d =$ [2]

- (b)** Make d the subject of the formula.

Answer(b) $d =$ [2]

16 As the earth rotates, a point on the equator moves round at a speed of 1669.8 kilometres/hour.

(a) Write down this number in standard form, correct to 3 significant figures.

Answer(a) [2]

(b) Change 1669.8 kilometres/hour into metres/second.

Answer(b) m/s [2]

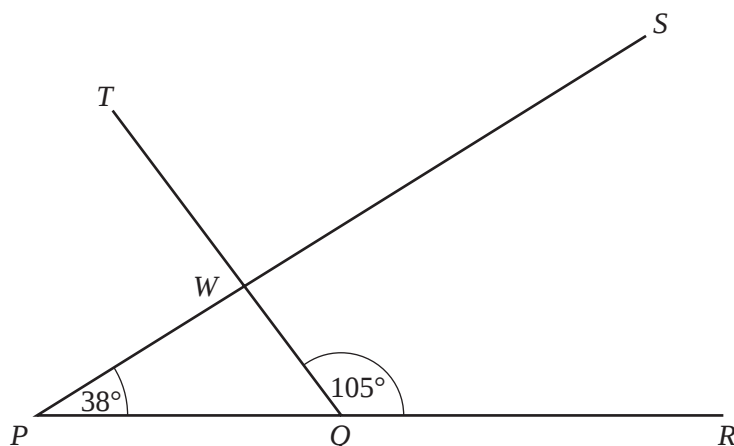
17 (a) Factorise $5x^2 + 4xy$.

Answer (a) [1]

(b) Simplify completely $7(2x + y) - 3(3x - 2y)$.

Answer (b) [3]

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The lines PS and QT intersect at W .

PQR is a straight line.

Angle $SPR = 38^\circ$ and angle $TQR = 105^\circ$.

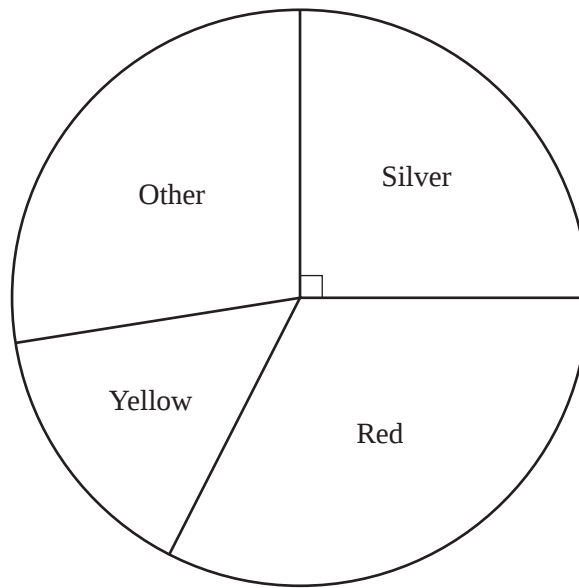
Write down the size of the following angles.

In each case give a reason for your answer.

(a) Angle $PQW =$ because
..... [2]

(b) Angle $PWQ =$ because
..... [2]

(c) Angle $TWS =$ because
..... [2]



The accurate pie chart shows information about the colours of 240 cars in a car park.

- (a) The sector angle for silver cars is 90° .
Calculate the number of silver cars in the car park.

Answer(a) [1]

- (b) There are 36 yellow cars in the car park.
Showing all your working, calculate the sector angle for yellow cars.

Answer(b) [2]

- (c) (i) Measure and write down the sector angle for red cars.

Answer(c)(i) [1]

- (ii) Calculate the percentage of red cars in the car park.

Answer(c)(ii) % [2]

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