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0580/11

October/November 2010

1 hour

Additional Materials:	Electronic calculator	Geometrical instruments
	Mathematical tables (optional)	Tracing paper (optional)

The total of the marks for this paper is 56.

[Turn over

- 1 On Monday the temperature was -3°C .
On Tuesday the temperature fell by 5°C .

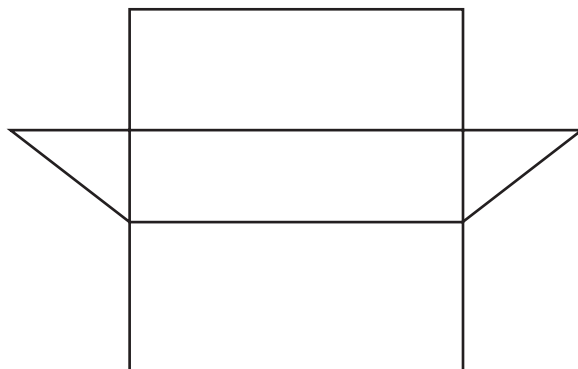
Write down the temperature on Tuesday.

Answer $^{\circ}\text{C}$ [1]

- 2 Write 0.00387 in standard form.

Answer [1]

3



The diagram is an accurate net for a solid shape.

Write down the geometrical name for this solid shape.

Answer [1]

- 4 On a map, a straight section of a canal is 3.5 cm long.
The scale of the map is 1 cm to 5 km.

Calculate the actual length of this straight section.

Answer km [1]

- 5 Sophie invests \$450 at a rate of 1.5% per year **simple** interest.

Calculate the interest she earns after 8 years.

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Answer \$ [2]

6

A •

• B

Using a straight edge and compasses only, construct the locus of points which are equidistant from point *A* and from point *B*.

Show clearly all your construction arcs.

[2]

- 7 A box is 12 cm high, correct to the nearest centimetre.

Complete the statement about the height, h cm, of the box.

Answer $\leq h <$ [2]

- 8 The metal used to make a coin is a mixture of steel and copper.

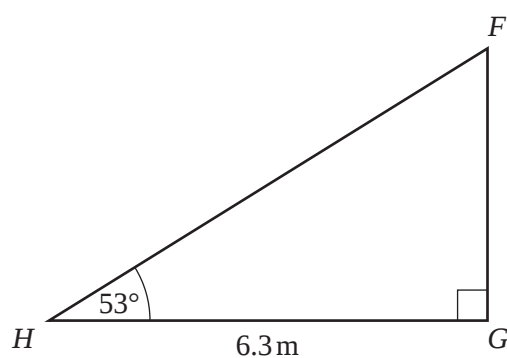
The ratio mass of steel : mass of copper is 108 : 7.

The coin has a total mass of 230 milligrams.

Calculate the mass of copper in this coin.

Answer milligrams [2]

9



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Calculate the length FG .

Answer m [2]

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- 10 Use your calculator to find the value of $\sqrt{25.63}$.

Write down your answer

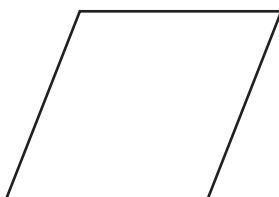
- (a) as it appears on your calculator,

Answer(a) [1]

- (b) correct to 4 significant figures.

Answer(b) [1]

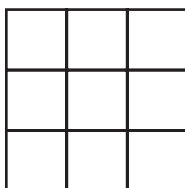
- 11 (a)



The diagram shows a rhombus.

Draw all the lines of symmetry. [2]

- (b)



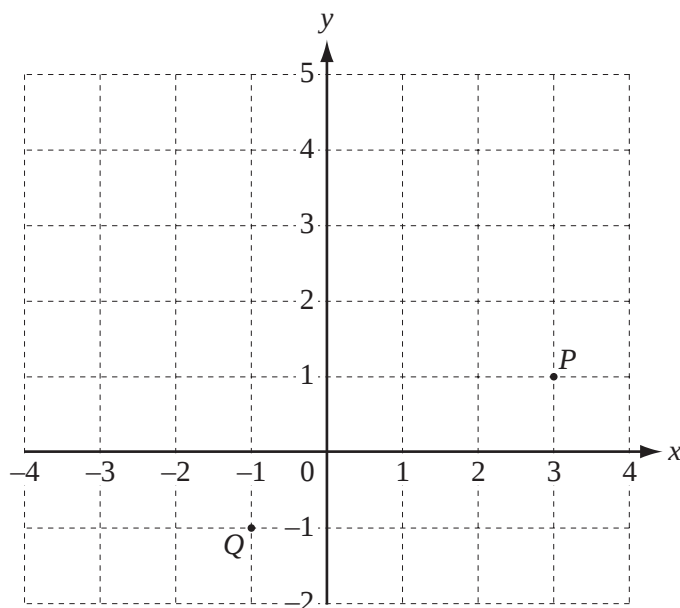
Shade **two** squares in the diagram above so that the figure has **one** line of symmetry and **no** rotational symmetry. [1]

- 12 Solve the simultaneous equations.

$$\begin{aligned} 3x + y &= 18 \\ 4x - 2y &= 34 \end{aligned}$$

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

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The points $P(3, 1)$ and $Q(-1, -1)$ are marked on the grid.

- (a) Write down the vector $\vec{QP}$.

$$\text{Answer(a)} \quad \vec{QP} = \begin{pmatrix} \quad \\ \quad \end{pmatrix} \quad [1]$$

- (b) R and S are two more points.

$$\vec{PR} = \begin{pmatrix} -2 \\ 1 \end{pmatrix} \text{ and } \vec{PS} = 3 \vec{PR}.$$

- (i) Write down the vector $\vec{PS}$.

$$\text{Answer(b)(i)} \quad \vec{PS} = \begin{pmatrix} \quad \\ \quad \end{pmatrix} \quad [1]$$

- (ii) Mark the point S on the grid. [1]

14 Simplify the following.

(a) 8^0

Answer(a) [1]

(b) $(x^5)^2$

Answer(b) [1]

(c) $p^{-3} \div p^4$

Answer(c) [1]

15 A tourist changes \$900 to euros (€) when the exchange rate is €1 = \$1.356.

Calculate the amount he receives.

Give your answer correct to 2 decimal places.

Answer € [3]

- 16 (a) Write down all the common factors of 30 and 42.

Answer(a) [2]

- (b) Write down the smallest number which is a multiple of both 12 and 18.

Answer(b) [2]

- 17 Simon has ten cards, numbered 1 to 10.
He chooses a card at random.

Write down the probability that the number on the card is

- (a) 8,

Answer(a) [1]

- (b) 12,

Answer(b) [1]

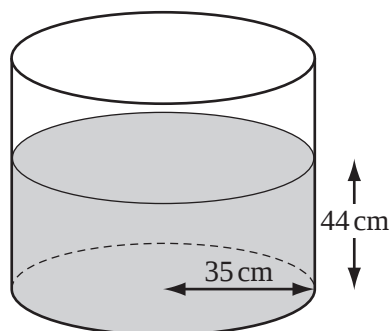
- (c) an odd number,

Answer(c) [1]

- (d) not a multiple of 3.

Answer(d) [1]

18

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A cylindrical tank, with radius 35 cm, is filled with water to a depth of 44 cm.

- (a) Calculate the area of the base of the tank.

Answer(a) cm^2 [2]

- (b) Calculate the volume of water in the tank.

Answer(b) cm^3 [1]

- (c) Change your answer to **part (b)** into litres.

Answer(c) litres [1]

19 In this question, **you must show all the steps in your working.**

Without using a calculator, find the value of

(a) $1\frac{1}{3} \div 2\frac{4}{5}$,

Answer(a) [3]

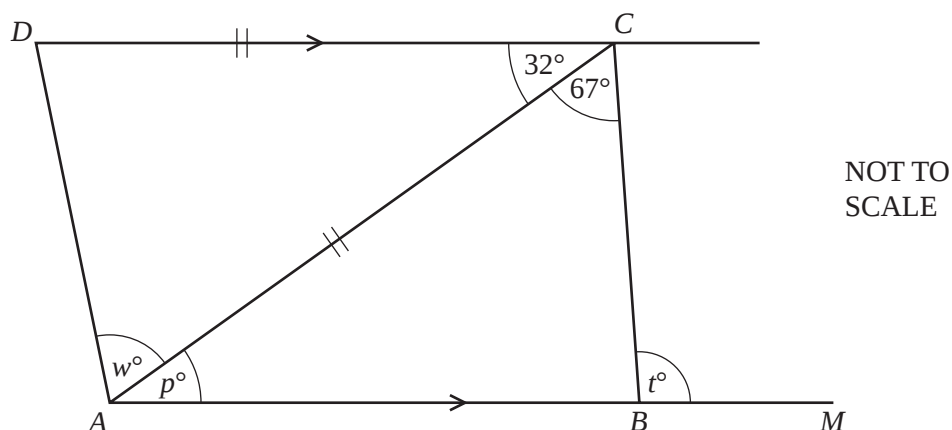
(b) $\frac{13}{15} + \frac{3}{5}$.

Give your answer as a mixed number.

Answer(b) [3]

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The diagram shows a quadrilateral $ABCD$ with DC parallel to AB .

- (a) Write down the geometrical name for a quadrilateral with **only one** pair of parallel sides.

Answer(a) [1]

- (b) ABM is a straight line and $DC = AC$.
Angle $DCA = 32^\circ$ and angle $ACB = 67^\circ$.

Find the values of p , t and w , giving a reason for each answer.

Answer (b) $p =$ because [2]

$t =$ because [2]

$w =$ because [2]

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