



- 1 There are 31 days in January.  
January 21st 2015 was a Wednesday.

What day of the week was February 8th 2015?

*Answer* ..... [1]

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- 2 The temperature in Berlin is  $-7^{\circ}\text{C}$  and the temperature in Istanbul is  $-3^{\circ}\text{C}$ .

(a) Write down how many degrees colder it is in Berlin than it is in Istanbul.

*Answer(a)* .....  $^{\circ}\text{C}$  [1]

(b) Sydney is 23 degrees warmer than Berlin.

Write down the temperature in Sydney.

*Answer(b)* .....  $^{\circ}\text{C}$  [1]

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- 3 (a) A mass of 300 kg is increased by 8%.

Work out the increase in mass.

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

(b) Nelson scores 27 out of 40 in a history test.

Work out his score as a percentage.

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

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4 The total mass of 38 spoons is 1824 g.

Work out the mass of 53 spoons.

*Answer* ..... g [2]

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5 Prince Charming invests \$3000 for 5 years at a rate of 4% per year simple interest.

Calculate the **total interest** he will receive.

*Answer* \$ ..... [2]

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6 **Using a ruler and compasses only**, construct a triangle with sides 5 cm, 6 cm and 7 cm.

The 5 cm side has been drawn for you.



[2]

---

7

equilateral triangle	square
regular pentagon	parallelogram
regular hexagon	circle

From the list write down

(a) the shape which has more than 6 lines of symmetry,

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

(b) the shape which has both acute and obtuse interior angles.

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

8

$$\mathbf{a} = \begin{pmatrix} 3 \\ 5 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} -8 \\ 7 \end{pmatrix}$$

Write each of the following as a single vector.

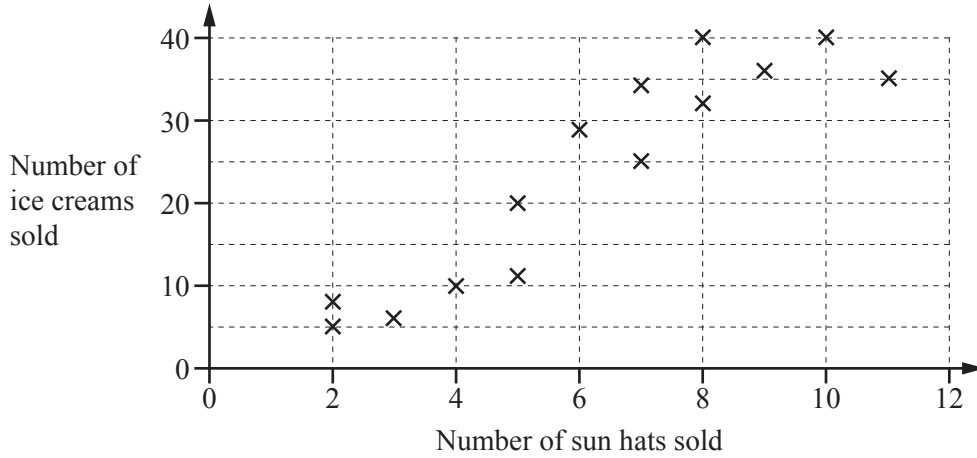
(a)  $3\mathbf{a}$

Answer(a)  $\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [1]

(b)  $\mathbf{a} - \mathbf{b}$

Answer(b)  $\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [1]

9 The scatter diagram shows the number of sun hats and ice creams sold by a shop each day for two weeks.



(a) Write down the type of correlation shown by the diagram.

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

(b) Describe the relationship between the number of sun hats sold and the number of ice creams sold.

Answer(b) .....

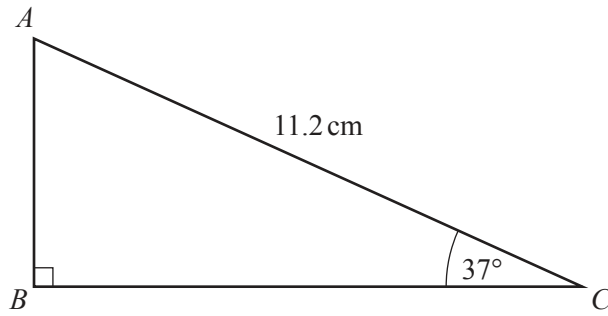
..... [1]

10 Simplify.

$$6uw^{-3} \times 4uw^6$$

Answer ..... [2]

11

NOT TO  
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*Answer*  $AB = \dots\dots\dots$  cm [2]

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12 (a) Write down the co-ordinates of the point where the line  $y = 3x + 5$  crosses the  $y$ -axis.

*Answer(a)* ( $\dots\dots\dots$ ,  $\dots\dots\dots$ ) [1]

(b) Write down the equation of a line that is parallel to the line  $y = 3x + 5$ .

*Answer(b)*  $\dots\dots\dots$  [1]

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13 (a) Factorise.

$$3w^2 - 2w$$

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

(b) Expand and simplify.

$$x(2x + 3) + 5(x - 7)$$

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

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14 Six donkeys are **each** given two 5 ml spoons of medicine three times each day.

Calculate the number of whole days a 2 litre bottle of medicine will last.

Answer ..... days [3]

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15 A cuboid has volume  $288 \text{ cm}^3$ .

(a) The cuboid has length 12 cm and width 5 cm.

Calculate the height of the cuboid.

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

(b)  $1 \text{ cm}^3$  of the cuboid has a mass of 4 g.

Work out the mass of the cuboid.

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

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16 Without using a calculator, work out  $1\frac{4}{5} \div \frac{3}{7}$ .

Show all your working and give your answer as a fraction in its lowest terms.

Answer ..... [3]

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17 (a) Write 82 600 in standard form.

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

(b) Calculate  $\frac{6.02 \times 10^8 - 5 \times 10^6}{3 \times 10^6}$ .

Give your answer in standard form.

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

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18 Solve the equation.

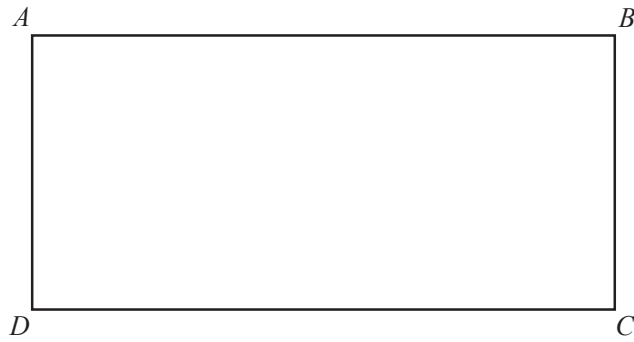
$$5(3y - 2) = 35$$

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

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19 In this question use a ruler and compasses.



Shade the region inside rectangle  $ABCD$  that is

- more than 2 cm from  $AD$
- and
- more than 4 cm from  $B$ .

[3]

20 (a) 2, 3, 6, 11, 18, ...

(i) Write down the next two terms in this sequence.

*Answer(a)(i)* ..... , ..... [2]

(ii) Describe, in words, the rule for continuing this sequence.

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

(b) The  $n$ th term of a different sequence is  $4n - 3$ .

Work out the first three terms in this sequence.

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

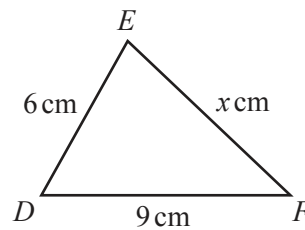
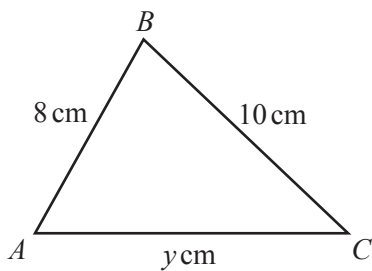
21 (a) Write 30 as a product of its prime factors.

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

(b) Find the lowest common multiple (LCM) of 30 and 45.

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

22



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Triangle  $ABC$  is similar to triangle  $DEF$ .

Calculate the value of

(a)  $x$ ,

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

(b)  $y$ .

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



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