



- 1 One morning, Marcia works from 08 20 to 11 15.

Find how long she works for.  
Give your answer in hours and minutes.

..... h ..... min [1]

- 2 Simplify.

$$7g - g + 2g$$

..... [1]

- 3 Expand.

$$7(x - 8)$$

..... [1]

- 4 Find the value of  $p$  when  $5^p \div 5^8 = 5^{13}$ .

$p =$  ..... [1]

- 5                                    22            17            25            41            39            4

Work out the difference between the two prime numbers in the list above.

..... [2]

- 6 Here is a sequence.

$$a, \quad 13, \quad 9, \quad 3, \quad -5, \quad -15, \quad b, \quad \dots$$

Find the value of  $a$  and the value of  $b$ .

$a =$  .....

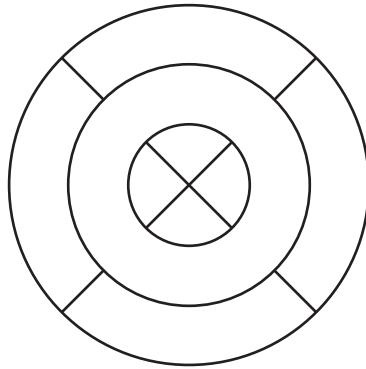
$b =$  ..... [2]

- 7 The bearing of a lighthouse from a coastguard station is  $113^\circ$ .

Work out the bearing of the coastguard station from the lighthouse.

..... [2]

8



For this diagram, write down

(a) the number of lines of symmetry,

..... [1]

(b) the order of rotational symmetry.

..... [1]

9 Write these numbers in order, starting with the smallest.

$5^{-2}$        $\frac{1}{27}$        $\frac{2}{55}$       0.038

..... < ..... < ..... < ..... [2]  
*smallest*

10 Factorise completely.

$4xy^2 - 6y^3$

..... [2]

11 Here are some numbers written in standard form.

$3.4 \times 10^{-1}$        $1.36 \times 10^6$        $7.9 \times 10^0$        $2.4 \times 10^5$        $5.21 \times 10^{-3}$        $4.3 \times 10^{-2}$

From these numbers, write down

(a) the largest number,

..... [1]

(b) the smallest number.

..... [1]

12

$$\mathbf{a} = \begin{pmatrix} 5 \\ -2 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} -7 \\ -3 \end{pmatrix}$$

Work out  $\mathbf{a} + 3\mathbf{b}$ .

$$\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix} \quad [2]$$

13 Make  $y$  the subject of the equation  $5x - 2y + 7 = 0$ .

$$y = \dots\dots\dots [2]$$

14 Change 600 euros into dinars when the exchange rate is 1 euro = 0.429 dinars.  
Give your answer correct to the nearest dinar.

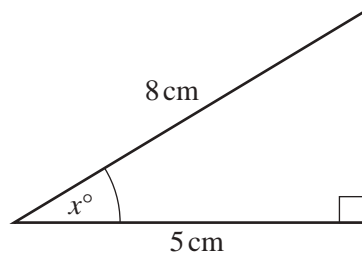
$$\dots\dots\dots \text{ dinars} [2]$$

15 Complete these statements.

(a) When  $w = \dots\dots\dots$ ,  $10w = 70$ . [1]

(b) When  $5x = 15$ ,  $12x = \dots\dots\dots$  [1]

16

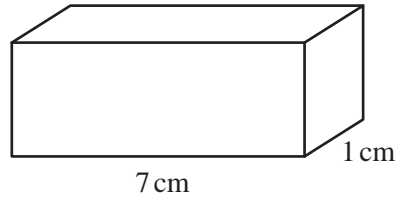


NOT TO  
SCALE

Use trigonometry to calculate the value of  $x$ .

$$x = \dots\dots\dots [2]$$

17



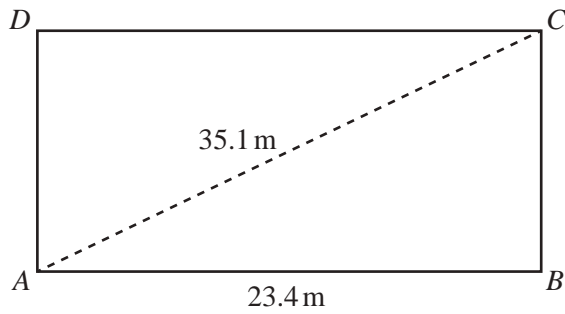
NOT TO SCALE

The diagram shows a solid cuboid with base area  $7\text{ cm}^2$ .  
The volume of this cuboid is  $21\text{ cm}^3$ .

Work out the total surface area.

.....  $\text{cm}^2$  [3]

18



NOT TO SCALE

The diagram shows a rectangular playground  $ABCD$ .  
 $AB = 23.4\text{ m}$  and  $AC = 35.1\text{ m}$ .

Calculate  $BC$ .

$BC =$  .....  $\text{m}$  [3]

19 Friedrich borrows \$1200 for 3 years at a rate of 5.6% per year compound interest.

Work out the total amount he pays back at the end of the 3 years.

\$ ..... [3]

- 20 A cylindrical glass has radius 3.6 cm and height 11 cm.  
It is filled with water.

(a) Calculate, in cubic centimetres, the volume of water it contains.

..... cm<sup>3</sup> [2]

(b) Write your answer to **part (a)** in litres.

..... litres [1]

- 21 The cost of hiring a car for 12 days is \$167.90.  
The cost of hiring this car for the first day is \$20.50.

Work out the cost per day for the remaining 11 days.

\$ ..... [3]

22

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
67	75	53	68	94	87

The table shows the number of customers in a restaurant on each day it is open during one week.

(a) Write down the day most customers came into the restaurant.

..... [1]

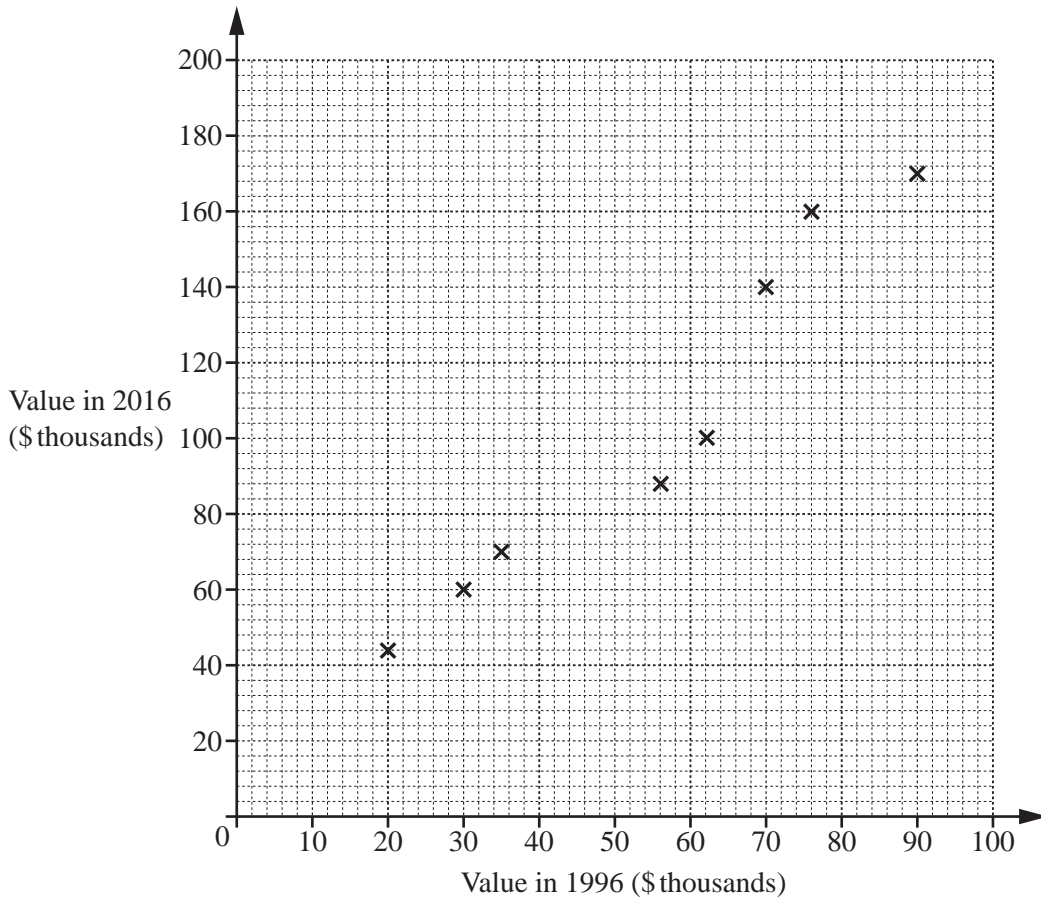
(b) Calculate the mean number of customers per day.

..... [2]

(c) Find the range of the number of customers.

..... [1]

- 23 The scatter diagram shows the value, in thousands of dollars, of eight houses in 1996 and the value of the same houses in 2016.



- (a) One of these eight houses had a value of \$70 000 in 1996.

Write down the value of this house in 2016.

\$ ..... [1]

- (b) The values of two more houses are shown in the table.

Value in 1996 (\$ thousands)	40	80
Value in 2016 (\$ thousands)	80	150

On the scatter diagram, plot these values.

[1]

- (c) On the scatter diagram, draw a line of best fit.

[1]

- (d) Another house had a value of \$50 000 in 1996.

Find an estimate of the value of this house in 2016.

\$ ..... [1]

**Question 24 is printed on the next page.**

24 Without using your calculator, work out the following.

You must show all your working and give each answer as a fraction in its simplest form.

(a)  $\frac{2}{3} - \frac{1}{12}$

..... [2]

(b)  $3\frac{3}{7} \div 4\frac{5}{14}$

..... [3]

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