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0580/12

May/June 2018

1 hour

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

READ THESE INSTRUCTIONS FIRST

DO **NOT** WRITE IN ANY BARCODES.

For π , use either your calculator value or 3.142.

The total of the marks for this paper is 56.

This document consists of **8** printed pages.

- 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 .

$a =$

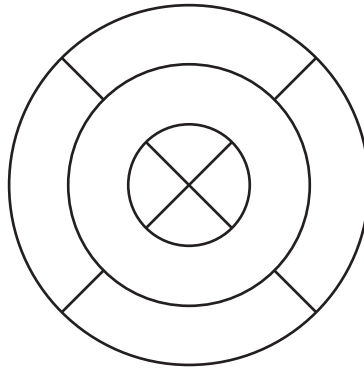
$b =$ [2]

- 7 The bearing of a lighthouse from a coastguard station is 113° .

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.

3.4×10^{-1}

1.36×10^6

7.9×10^0

2.4×10^5

5.21×10^{-3}

4.3×10^{-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 $\mathbf{a} + 3\mathbf{b}$.

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

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.

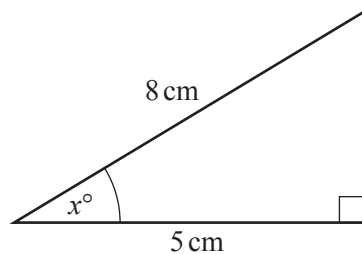
$$\dots\dots\dots \text{ dinars } [2]$$

15 Complete these statements.

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

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

16

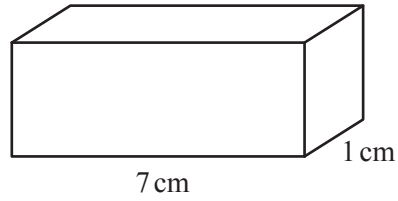


NOT TO
SCALE

Use trigonometry to calculate the value of x .

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

17

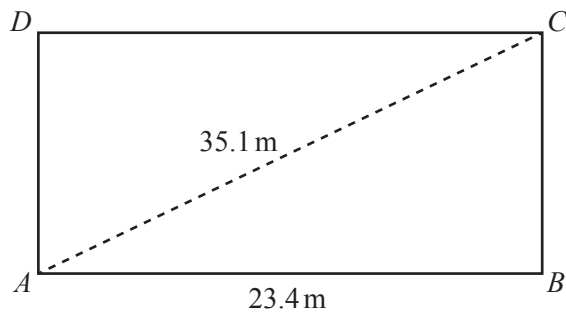
NOT TO
SCALE

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

Work out the total surface area.

..... 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 .

$BC =$ 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^3 [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]

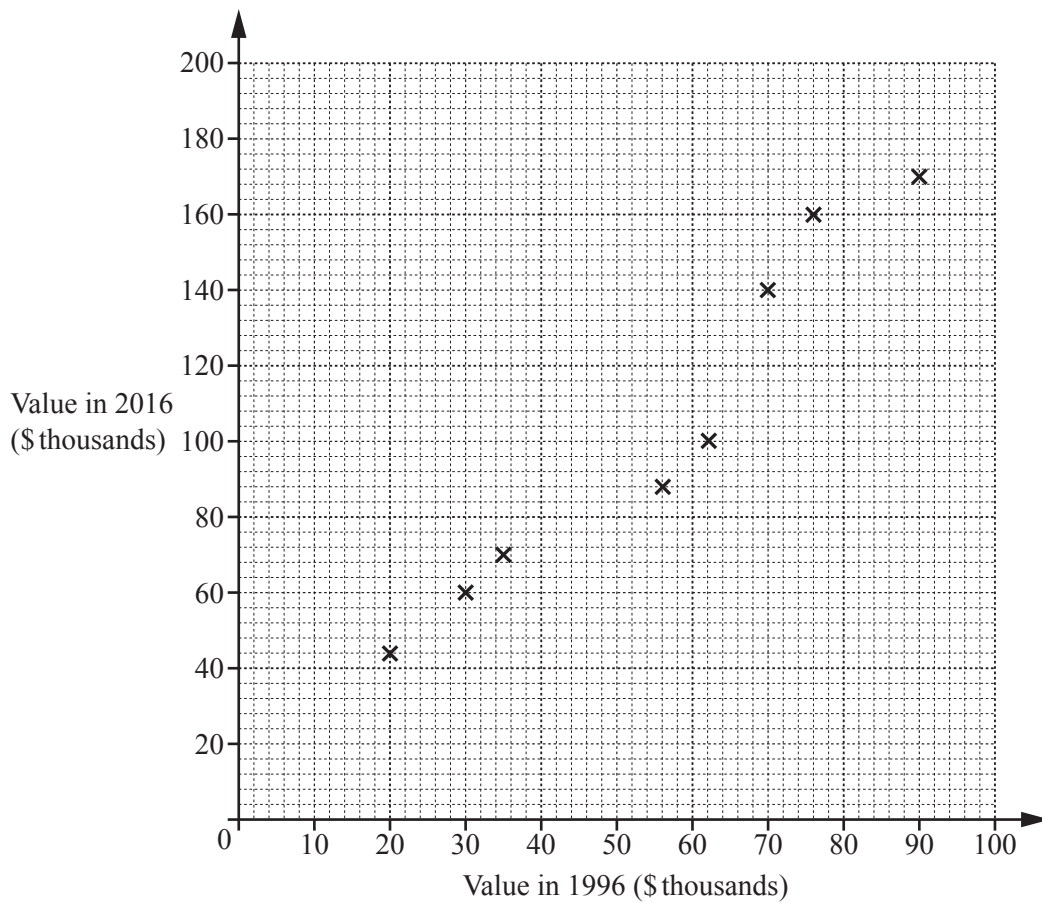
(b) Calculate the mean number of customers per day.

..... [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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