Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

MATHEMATICS **0580/12**

Paper 1 (Core) **May/June 2018**

1 hour

Candidates answer on the Question Paper.

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

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
If working is needed for any question it must be shown below that question.
Electronic calculators should be used.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
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, 13, 9, 3, –5, –15, b, …

Find the value of a and the value of b.

$a =$ .....

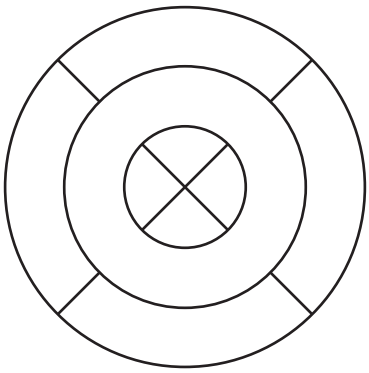
$b =$ ..... [2]

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

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

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

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

$y =$ ..... [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.

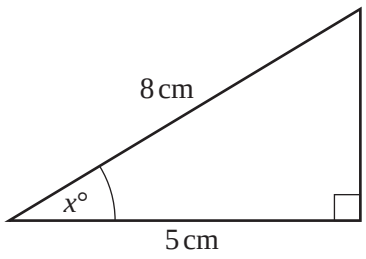
..... dinars [2]

15 Complete these statements.

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

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

16

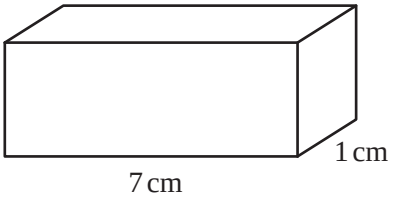


NOT TO SCALE

Use trigonometry to calculate the value of x.

$x =$ ..... [2]

17



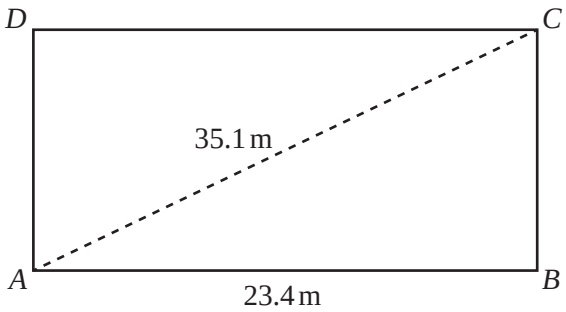
NOT TO SCALE

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 $ABCD$.
$AB = 23.4\,m$ and $AC = 35.1\,m$.

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]

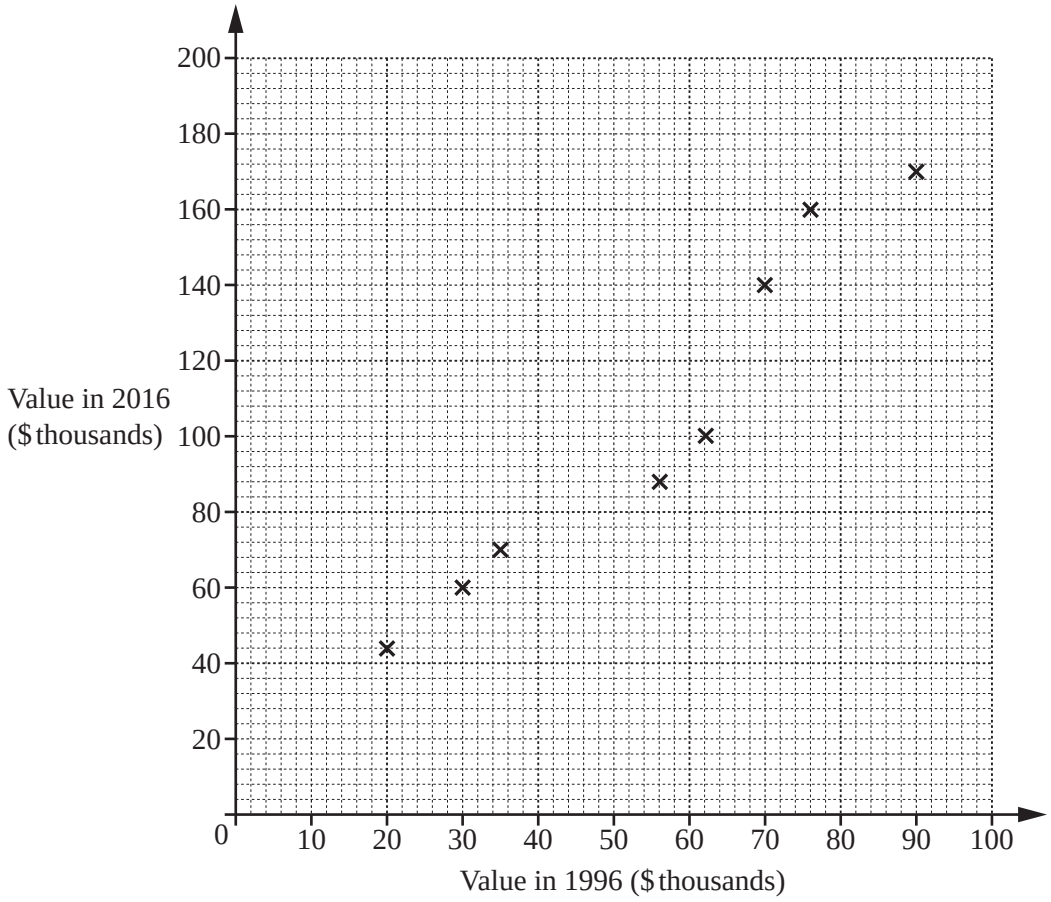
(b) Calculate the mean number of customers per day.

..... [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]