Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

8109771241

MATHEMATICS **0580/12**

Paper 1 (Core) **October/November 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.

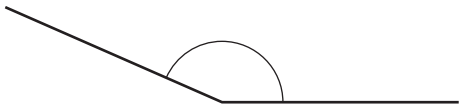
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 56.

This document consists of **11** printed pages and **1** blank page.

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1



Write down the type of angle shown in the diagram.

..... [1]

2 Write down the size of one angle in an equilateral triangle.

..... [1]

3 Write 23 000 in standard form.

..... [1]

4 Work out.

(a) $\begin{pmatrix}-2\\5\end{pmatrix}-\begin{pmatrix}-1\\1\end{pmatrix}$

$\begin{pmatrix}\quad\\\quad\end{pmatrix}$ [1]

(b) $7\begin{pmatrix}-3\\4\end{pmatrix}$

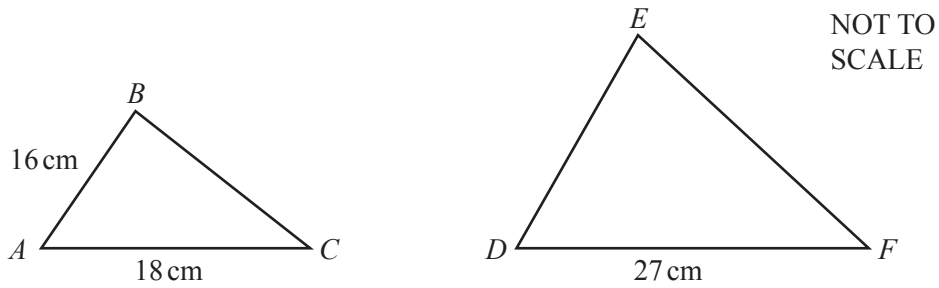
$\begin{pmatrix}\quad\\\quad\end{pmatrix}$ [1]

5 Expand.

$2x(3-x^2)$

..... [2]

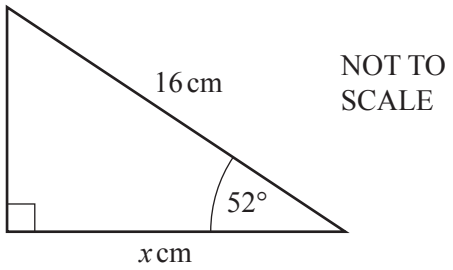
6 Triangle ABC and triangle DEF are similar.



Find DE.

$DE =$ ..... cm [2]

7 The diagram shows a right-angled triangle.



Use trigonometry to calculate the value of x.

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

8 $T = a^2 + 4b$

Find the value of T when $a = 5$ and $b = 3$.

$T =$ ..... [2]

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9 Complete the table.

Fraction		Percentage
$\frac{1}{4}$	=	
	=	47%
$\frac{3}{5}$	=	

[3]

10 The scale drawing shows the positions of town *A* and town *B*.
The scale is 1 centimetre represents 12 kilometres.





Scale: 1 cm to 12 km

(a) Work out the actual distance from town *A* to town *B*.

..... km [2]

(b) Measure the bearing of town *B* from town *A*.

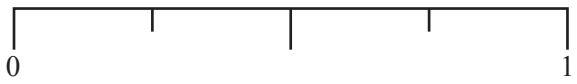
..... [1]

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11 **(a)** A bag contains 6 blue counters and 2 red counters only.
A counter is taken from the bag at random.

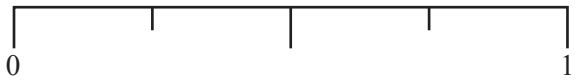
Draw an arrow (↓) on the probability scale to show the probability of taking

(i) a blue counter,



[1]

(ii) a yellow counter.



[1]

(b) Another bag contains green counters and black counters only.
A counter is taken from the bag at random.
The probability of taking a green counter is 0.64 .

Work out the probability of taking a black counter.

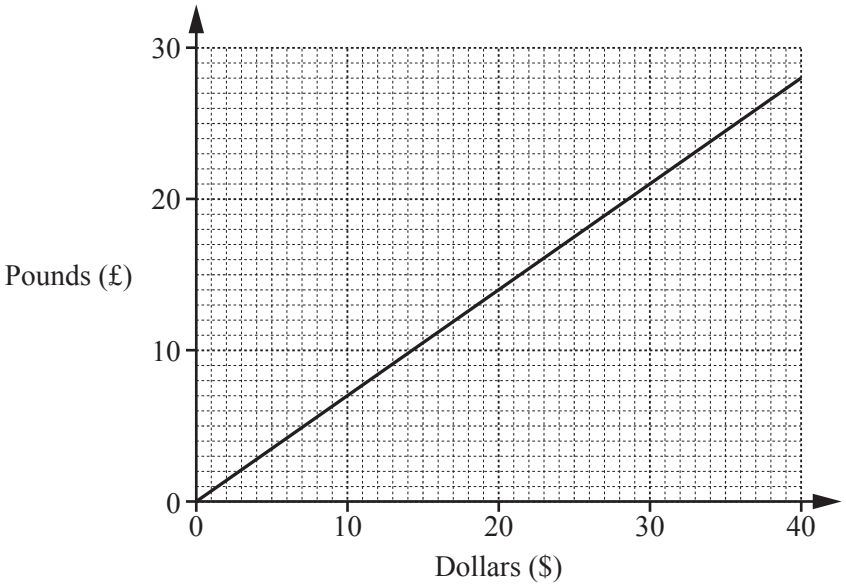
..... [1]

12 Samit invests $1800 at a rate of 4.5% per year simple interest.

Work out the value of his investment at the end of 4 years.

$ ..... [3]

13 The diagram shows a conversion graph between pounds (£) and dollars ($).



Ana finds the same watch on sale in a shop and on the internet.
The shop price is $120.
The internet price is £90.

Use the conversion graph to find which price is lower.
Show your working clearly.

The ..... price is lower. [3]

14 **(a)** The expression for the nth term of a sequence is $5n^2$.

Work out the third term in this sequence.

..... [1]

(b) These are the first five terms of a sequence.

$-4 \quad 2 \quad 8 \quad 14 \quad 20$

Find an expression for the nth term of this sequence.

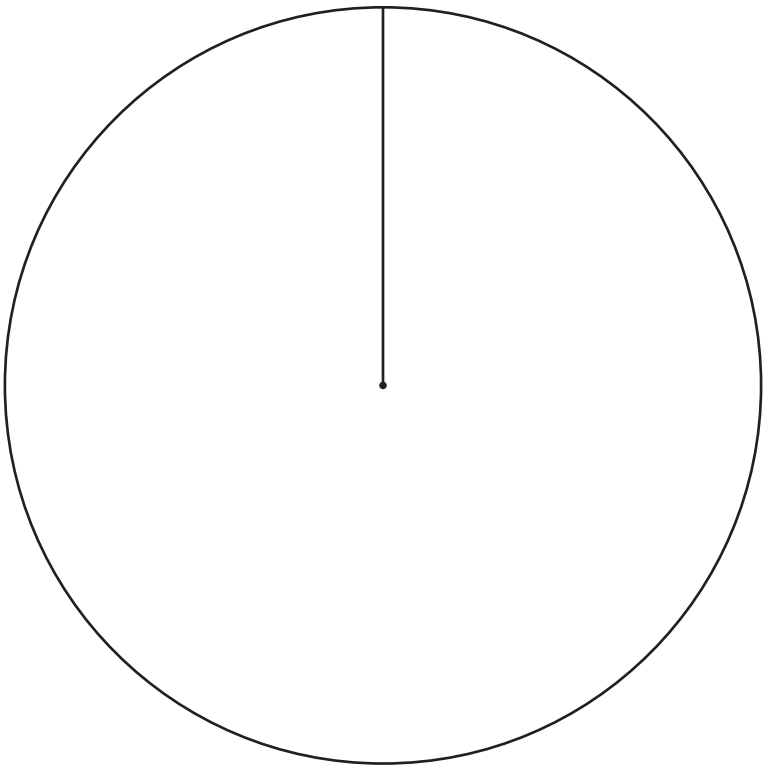
..... [2]

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15 120 students choose what they want to do when they leave school.
Their choices are shown in the table.

Choice	Number of students
University	57
Training	45
Work	18

Complete the pie chart to show this information.
Label each sector clearly.



[4]

16 Calculate.

(a) 4.1^3

..... [1]

(b) $-4-(5^2-2\times4\times-3)$

..... [1]

(c) $\dfrac{4.88-2.36}{5.3+1.9}$

..... [1]

(d) $\sqrt{56.25}-\sqrt[3]{15.625}$

..... [1]

17 **(a)** Write 56 as a product of its prime factors.

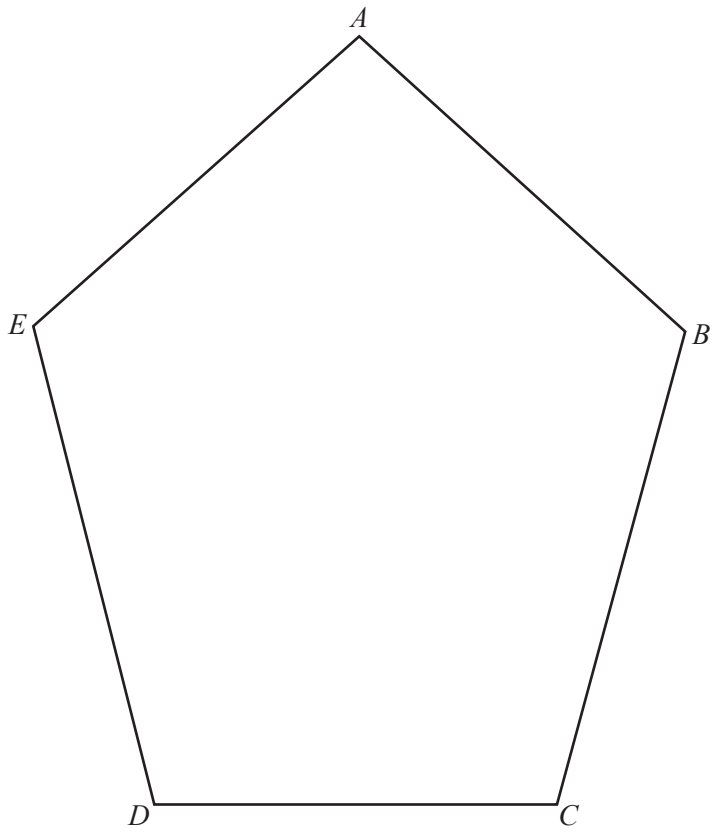
..... [2]

(b) Find the lowest common multiple (LCM) of 56 and 42.

..... [2]

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18 The diagram shows a pentagon *ABCDE*.



(a) **Using a straight edge and compasses only**, construct the bisector of angle *BCD*. [2]

(b) Draw the locus of the points inside the pentagon that are 3 cm from *E*. [1]

(c) Shade the region inside the pentagon that is

- less than 3 cm from *E*

and

- nearer to *DC* than to *BC*.

[1]

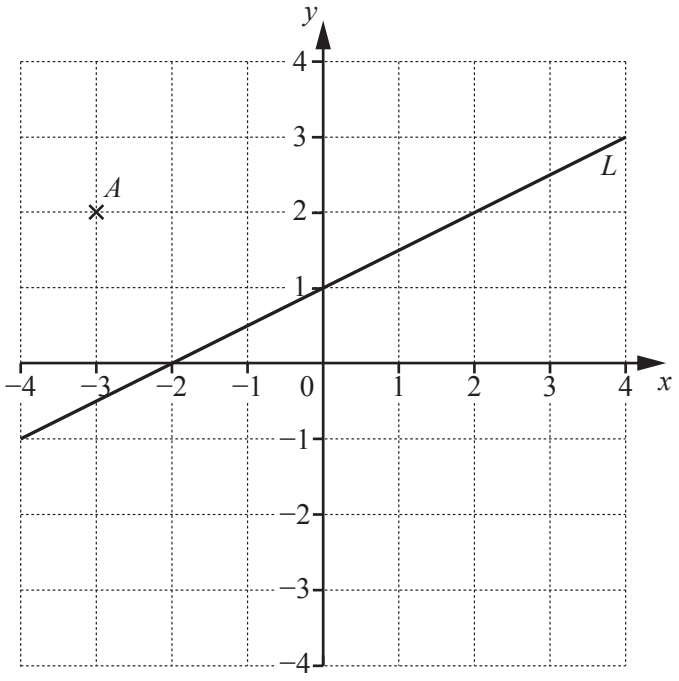
19 Solve the simultaneous equations.
You must show all your working.

$$2x + 5y = 60$$
$$3x - 2y = 14$$

$x =$ .....

$y =$ ..... [4]

20



(a) Write down the co-ordinates of point A.

(..... , ...) [1]

(b) On the grid, plot point B (1, –3). [1]

(c) Find the gradient of line L.

..... [2]

(d) Find the equation of line L in the form $y = mx + c$.

$y =$ ..... [1]

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