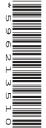


## **Cambridge Assessment International Education**

Cambridge International General Certificate of Secondary Education

CANDIDATE NAME				
CENTRE NUMBER		CANDIE NUMBE		



MATHEMATICS 0580/13

Paper 1 (Core) May/June 2019

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator Geometrical instruments

Tracing paper (optional)

## **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.

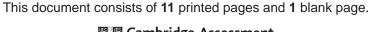
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

For  $\pi$ , 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.





1	Write 3.058 correct to 3 significant figures.		
		[1	.]
2	Write 0.45 as a fraction in its simplest form.		
		[1	.]
3	Factorise $2x^2 - x$ .		
		[1	. ]
4	Find the co-ordinates of the point where the line $y = 3x - 8$ crosses the	ne y-axis.	
		() [1	.]
5	Giulio's reaction times are measured in two games. In the first game his reaction time is $\frac{1}{3}$ of a second. In the second game his reaction time is $\frac{1}{8}$ of a second.		
	Find the difference between the two reaction times.		
		s [1	.]
6	The probability that Alex wins a prize is 0.27.		
	Find the probability that Alex does not win a prize.		
		[1	.]

7 The table shows the different methods of travel for 20 people going to work.

Method of travel	Frequency
Car	10
Walk	5
Bike	3
Bus	2

		Bus		2			
	Which type of aver	age, mean, median	or mode, can	be used for this in	nformation?		
							[1]
8	Calculate.						
	(a) $-12 \div -2$						
							[1]
	<b>(b)</b> $\sqrt[3]{2^3+2}$						
							[1]
9	Simplify. $4x - 12$	y + 10x + 25y					
							[2]
10	Here is a list of nur	mbers.					
	$\frac{21}{3}$	$\sqrt{13}$	31	$\sqrt{121}$	51	0.7	
	From this list, write	e down					
	(a) a prime number	er,					
	(b) an irrational n	umber.					[1]
	(w) un munonar n	wiii001.					[1]

$$\mathbf{11} \qquad \mathbf{p} = \begin{pmatrix} 5 \\ 0 \end{pmatrix} \qquad \mathbf{q} = \begin{pmatrix} 1 \\ 6 \end{pmatrix}$$

Work out  $2\mathbf{p} + 3\mathbf{q}$ .

 $\left(\begin{array}{c} \\ \end{array}\right) [2]$ 

- 12 Write down the type of correlation you would expect for the following.
  - (a) The average speed of a train and the time taken for a journey.

[1	٦
 1	ı

**(b)** The distance travelled by a car and the amount of fuel used.

 1	l
 -	ı

13 The scale drawing shows a rock, *R*. The scale is 1 centimetre represents 30 metres. A lighthouse, *L*, is 210 m from *R*, on a bearing of 125°.

On the diagram, mark the position of L.

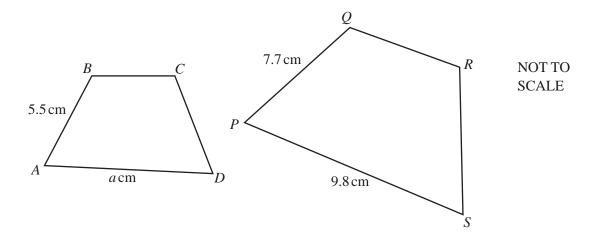


Scale: 1 cm to 30 m

[2]

14	Rearrange $2(w+h) = P$ to make w the subject.	
	$w = \dots$	[2]
15	Genaro measures the length, $l$ cm, of his desk as 120 cm, correct to the nearest centimetre.	
	Complete the statement about the value of $l$ .	
	≤ <i>l</i> <	[2]
16	Solve.	
	7x - 5 = 16	
	$x = \dots$	[2]
17	Without using a calculator, work out $\frac{12}{35} \times \frac{7}{9}$ .	
	You must show all your working and give your answer as a fraction in its simplest form.	
		[2]

18



Shape ABCD is similar to shape PQRS.

Work out the value of *a*.

a =		[2	2	
-----	--	----	---	--

19 Harry invests \$800 for 2 years at a rate of 3% per year compound interest.

Calculate the amount of interest he receives at the end of the 2 years.

\$ ......[3]

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

$$5x - 2y = 26$$
$$7x + 6y = 10$$

$$x = \dots$$

$$y = \dots$$
 [3]

21	(a)	Write down th	e next term	in each sec	quence.
----	-----	---------------	-------------	-------------	---------

(2)	10	7	2	2	0		F17
(1)	12,	7,	۷,	-5,	−o,	•••••	[1]

(b) Find an expression, in terms of n, for the nth term of this sequence.

5,	8,	11,	14,	
_	×	- 11	1 /1	
. ) .	ο.	11.	14.	

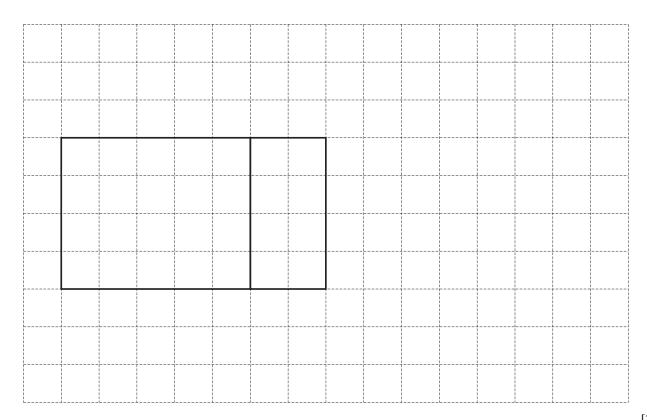
.....[2]

22 A closed box in the shape of a cuboid has length 5 cm, width 4 cm and height 2 cm.

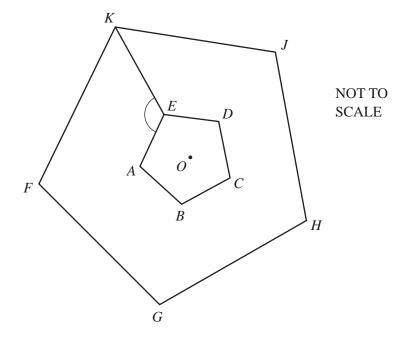
(a) Calculate the volume of the box.

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

**(b)** On the 1 cm<sup>2</sup> grid, complete the net of this box.



[2]

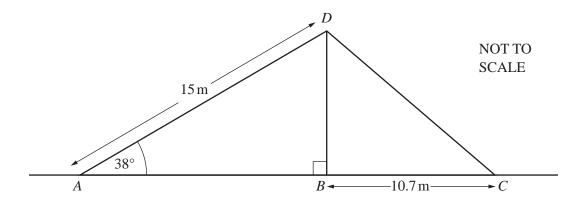


The diagram shows two regular pentagons. Pentagon FGHJK is an enlargement of pentagon ABCDE, centre O.

Find angle AEK.

Angle 
$$AEK = \dots$$
 [4]

24



A vertical flagpole, BD, stands on horizontal ground and is held by two ropes, AD and CD.  $AD = 15 \,\text{m}$ ,  $BC = 10.7 \,\text{m}$  and angle  $DAB = 38^{\circ}$ .

(a) Using trigonometry, calculate BD.

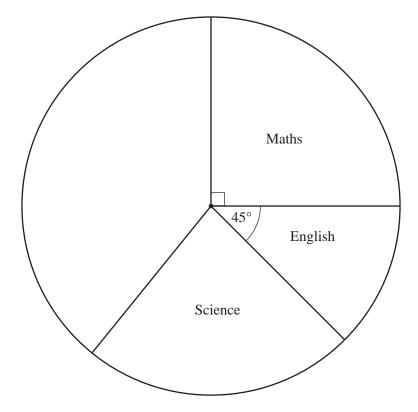
BD =	m	[2	1

**(b)** Calculate *CD*.

$$CD = \dots m [2]$$

25 Jason spends 480 minutes at school each day.

The pie chart shows the time he spends in three of his lessons.



(:	ı)	Measure	the	sector	angle	for	science.

 [1]
L 1

(b) Work out the time, in minutes, Jason spends in English.

.....min [2]

(c) Jason spends 100 minutes in geography and the rest of the day is free time.

Complete the pie chart.

[2]

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