Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

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5962135100

MATHEMATICS **0580/13**

Paper 1 (Core) **May/June 2019**

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 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 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]

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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

Which type of average, mean, median or mode, can be used for this information?

..... [1]

8 Calculate.

(a) $-12 \div -2$

..... [1]

(b) $\sqrt[3]{2^3 + 2}$

..... [1]

9 Simplify.

$$4x - 12y + 10x + 25y$$

..... [2]

10 Here is a list of numbers.

21 $\quad \frac{2}{3} \quad$ $\sqrt{13}$ $\quad$ 31 $\quad$ $\sqrt{121}$ $\quad$ 51 $\quad$ 0.7

From this list, write down

(a) a prime number,

..... [1]

(b) an irrational number.

..... [1]

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

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

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

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

..... [1]

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]

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14 Rearrange $2(w+h)=P$ to make w the subject.

$w =$ ..... [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.

..... $\leqslant l <$ ..... [2]

16 Solve.

$$7x-5=16$$

$x =$ ..... [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]

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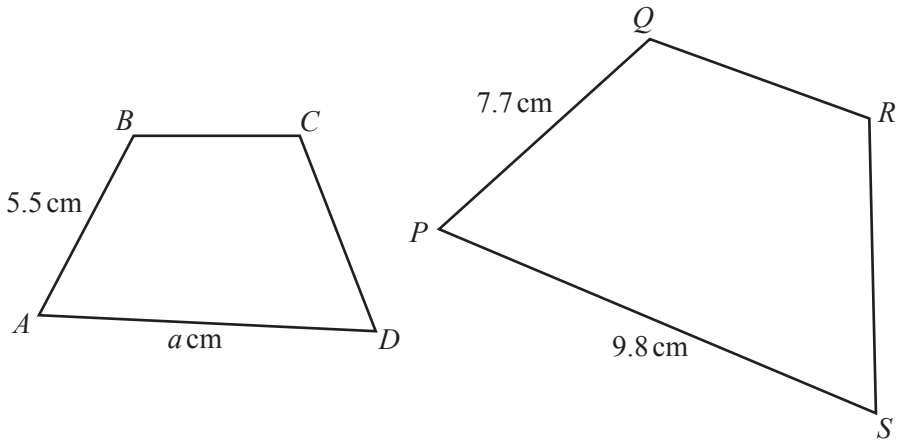
18



NOT TO SCALE

Shape *ABCD* is similar to shape *PQRS*.

Work out the value of *a*.

a = ... [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]

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

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

$x =$ .....

$y =$ ..... [3]

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21 **(a)** Write down the next term in each sequence.

(i) 12, 7, 2, −3, −8, ... [1]

(ii) 4, 7, 13, 25, 49, ... [1]

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

5, 8, 11, 14, …

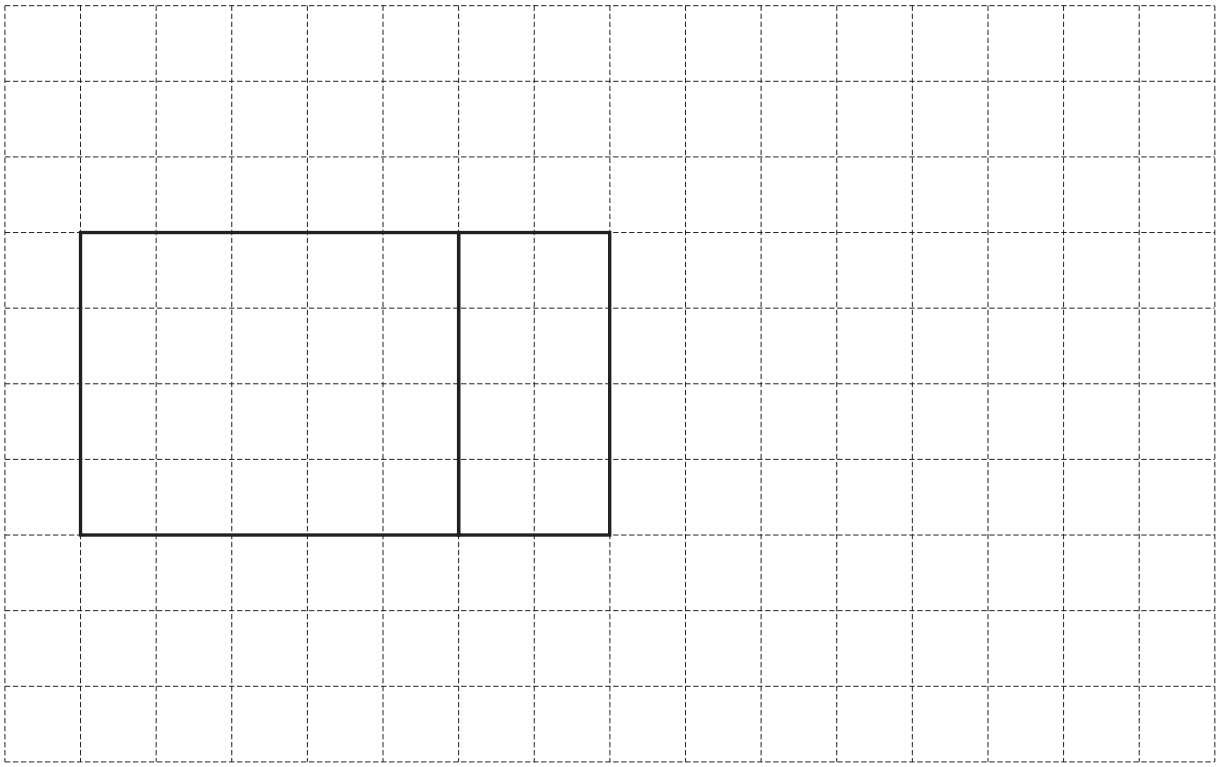
..... [2]

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^3 [2]

(b) On the 1 cm^2 grid, complete the net of this box.



[2]

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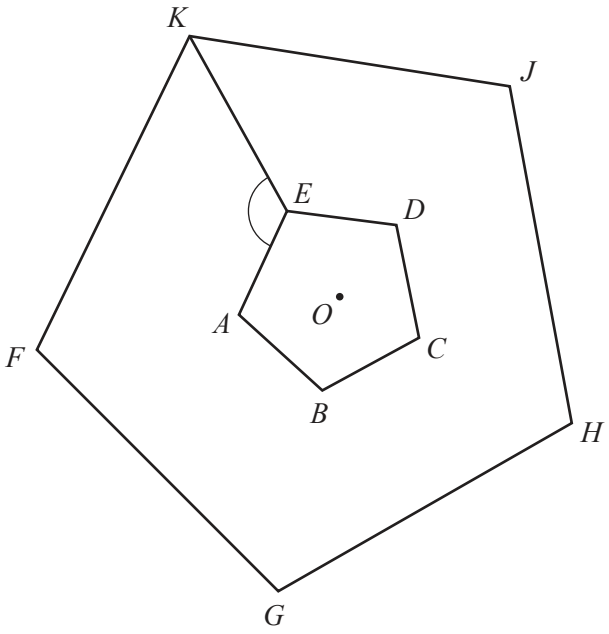
23



NOT TO SCALE

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

Find angle *AEK*.

Angle *AEK* = ... [4]

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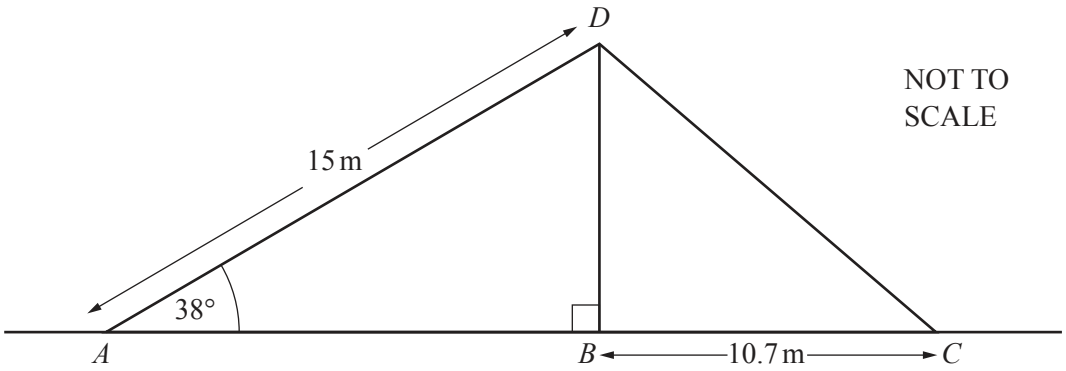
24



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 $DAB = 38°$.

(a) Using trigonometry, calculate BD.

$BD =$ ..... m [2]

(b) Calculate CD.

$CD =$ ..... m [2]

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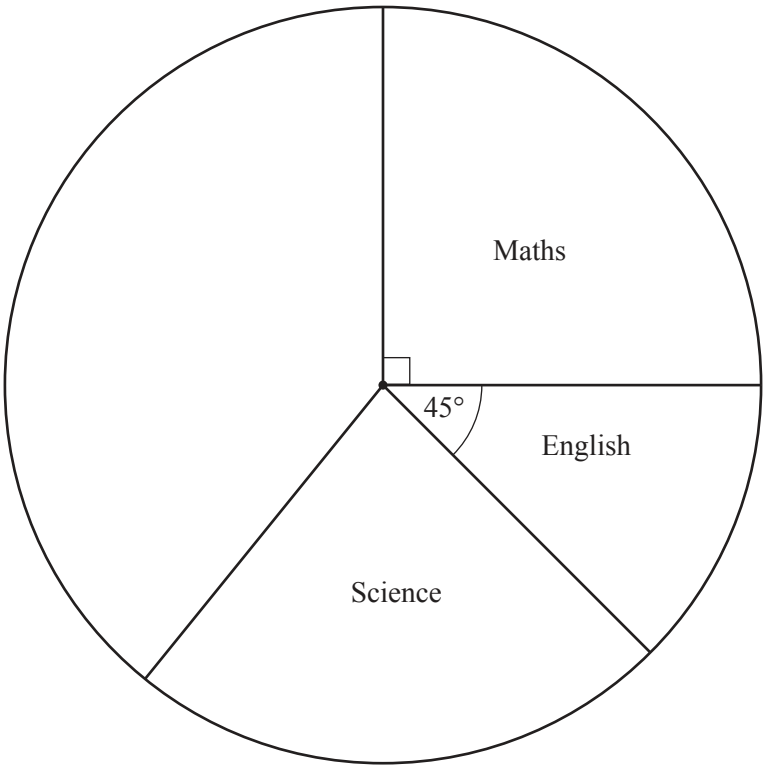
25 Jason spends 480 minutes at school each day.
The pie chart shows the time he spends in three of his lessons.



(a) Measure the sector angle for science.

..... [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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