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0580/13

May/June 2019

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 **11** printed pages and **1** blank page.

- 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]

- 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

$\frac{2}{3}$

$\sqrt{13}$

31

$\sqrt{121}$

51

0.7

From this list, write down

- (a) a prime number,

..... [1]

- (b) an irrational number.

..... [1]

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

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

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

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]

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

$$w = \dots\dots\dots [2]$$

- 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 .

$$\dots\dots\dots \leq l < \dots\dots\dots [2]$$

- 16 Solve.

$$7x - 5 = 16$$

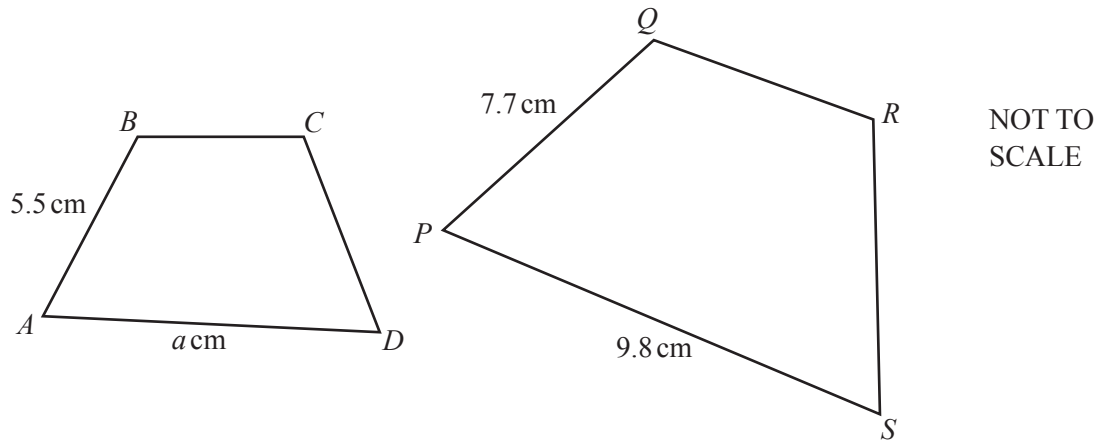
$$x = \dots\dots\dots [2]$$

- 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.

$$\dots\dots\dots [2]$$

18



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

Work out the value of a .

$a = \dots\dots\dots$ [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.

\$ \dots\dots\dots\$ [3]

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

$$\begin{aligned}5x - 2y &= 26 \\ 7x + 6y &= 10\end{aligned}$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [3]$$

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 n th term of this sequence.

5, 8, 11, 14, ...

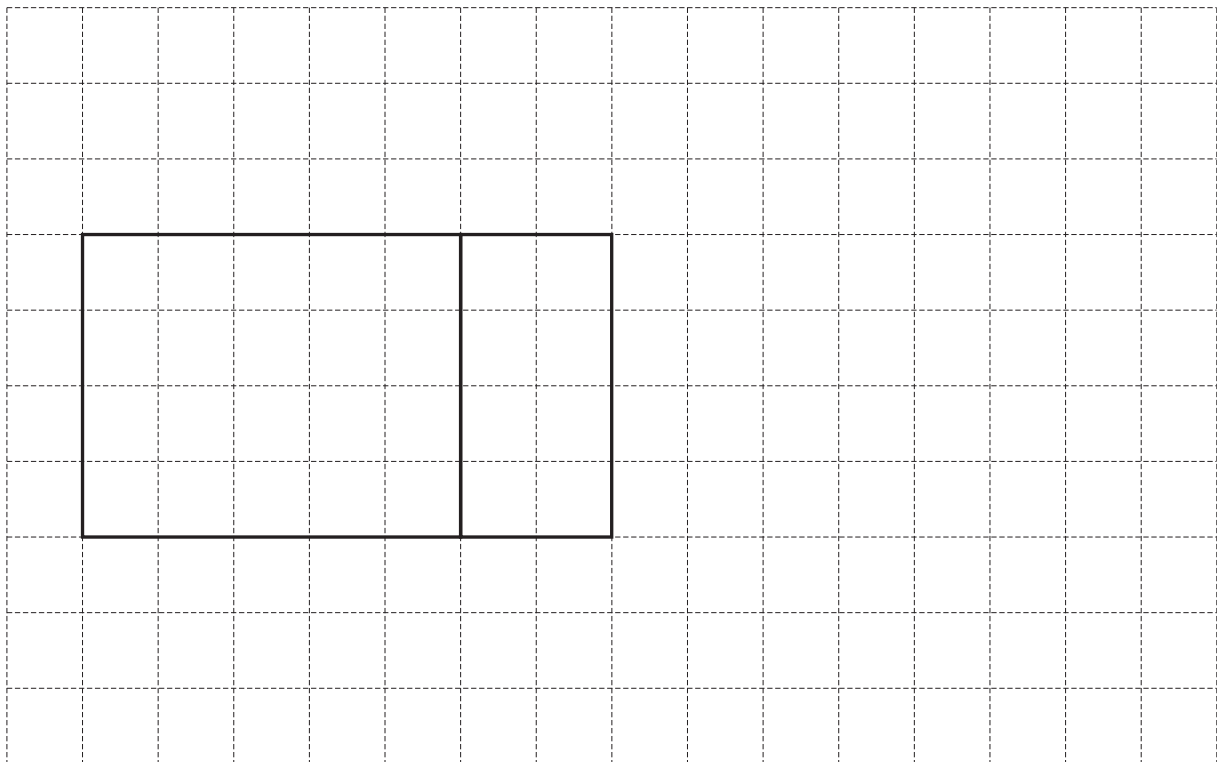
..... [2]

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.

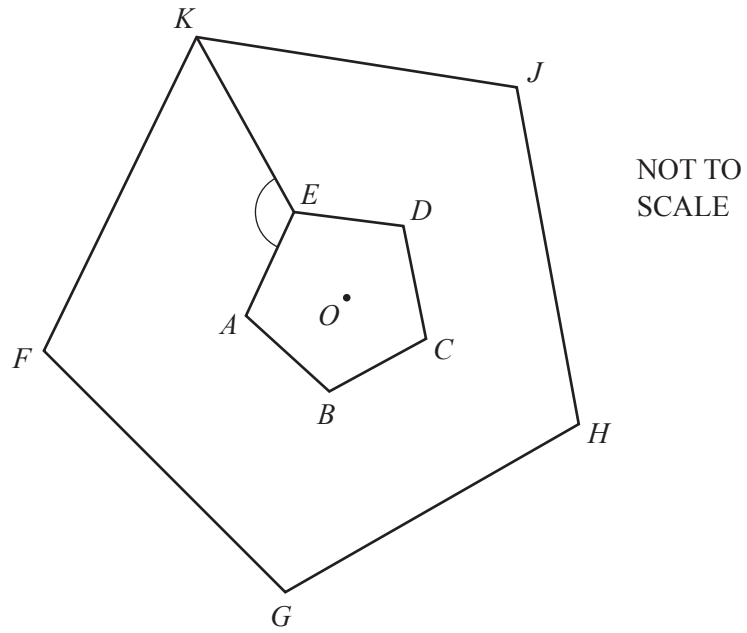
..... cm^3 [2]

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



[2]

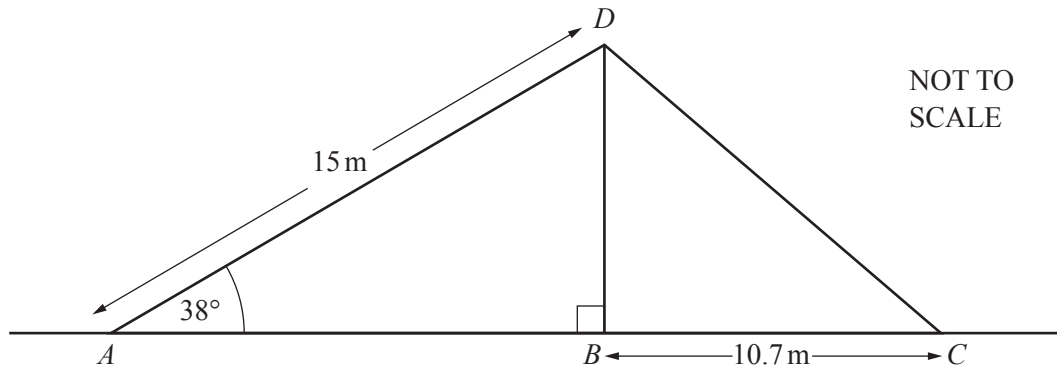
23



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

Find angle AEK .

Angle AEK = [4]



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 $DAB = 38^\circ$.

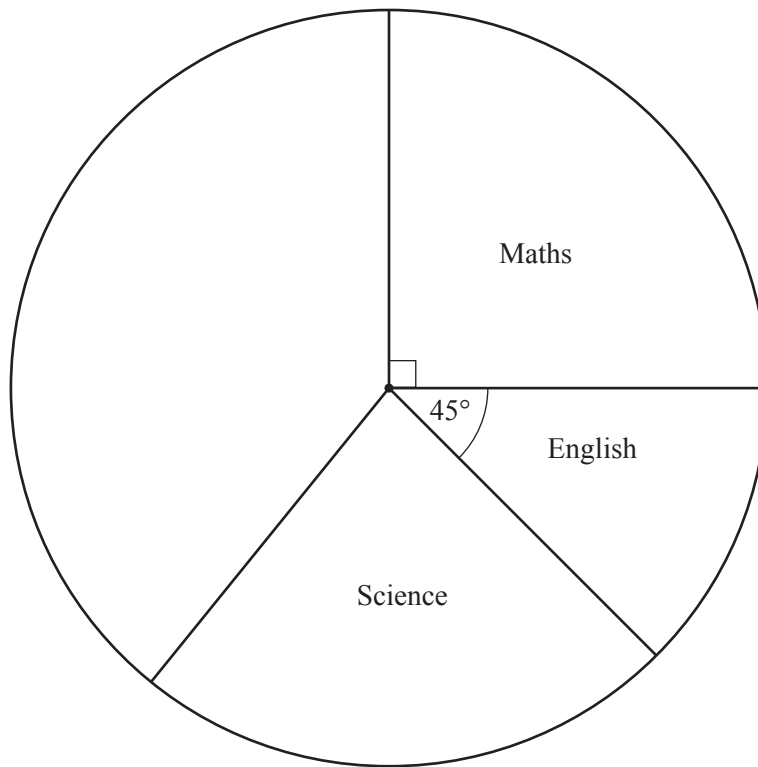
(a) Using trigonometry, calculate BD .

$BD = \dots\dots\dots\text{ m [2]}$

(b) Calculate CD .

$CD = \dots\dots\dots\text{ m [2]}$

- 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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