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MATHEMATICS

0580/11

Paper 1 (Core)

October/November 2020

1 hour

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should use a calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For π , use either your calculator value or 3.142.

INFORMATION

- The total mark for this paper is 56.
- The number of marks for each question or part question is shown in brackets [].

This document has **12** pages. Blank pages are indicated.

1 Write down the mathematical name for

(a) an angle which is less than 90° ,

..... [1]

(b) a polygon with 5 sides,

..... [1]

(c) a quadrilateral with exactly one pair of parallel sides.

..... [1]

2

hexagon perpendicular isosceles
 regular congruent

Put a ring around the word that describes two polygons that are the same shape and size. [1]

3 Write $\frac{60}{105}$ in its simplest form.

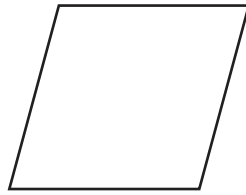
..... [1]

4 Calculate.

$$\sqrt{\frac{1}{0.01} - 8^2}$$

..... [1]

5 (a)

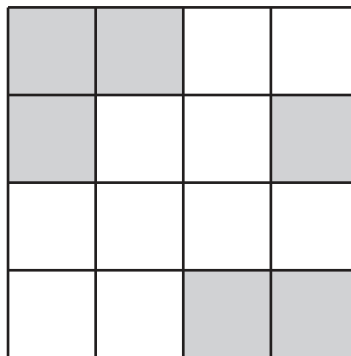


The diagram shows a rhombus.

On the diagram, draw all the lines of symmetry.

[2]

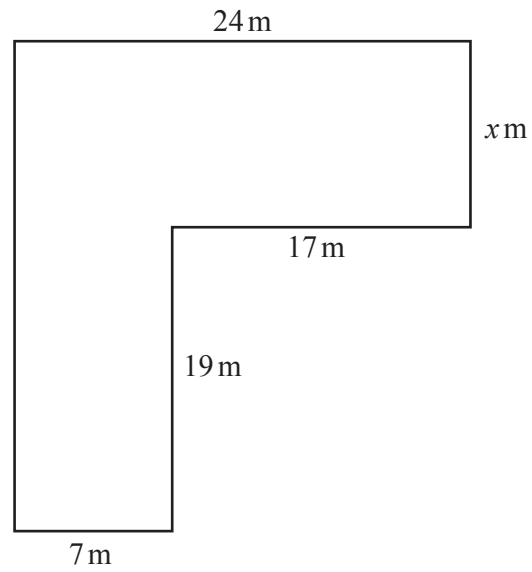
(b)



Shade two squares so that the diagram has rotational symmetry of order 2.

[1]

6

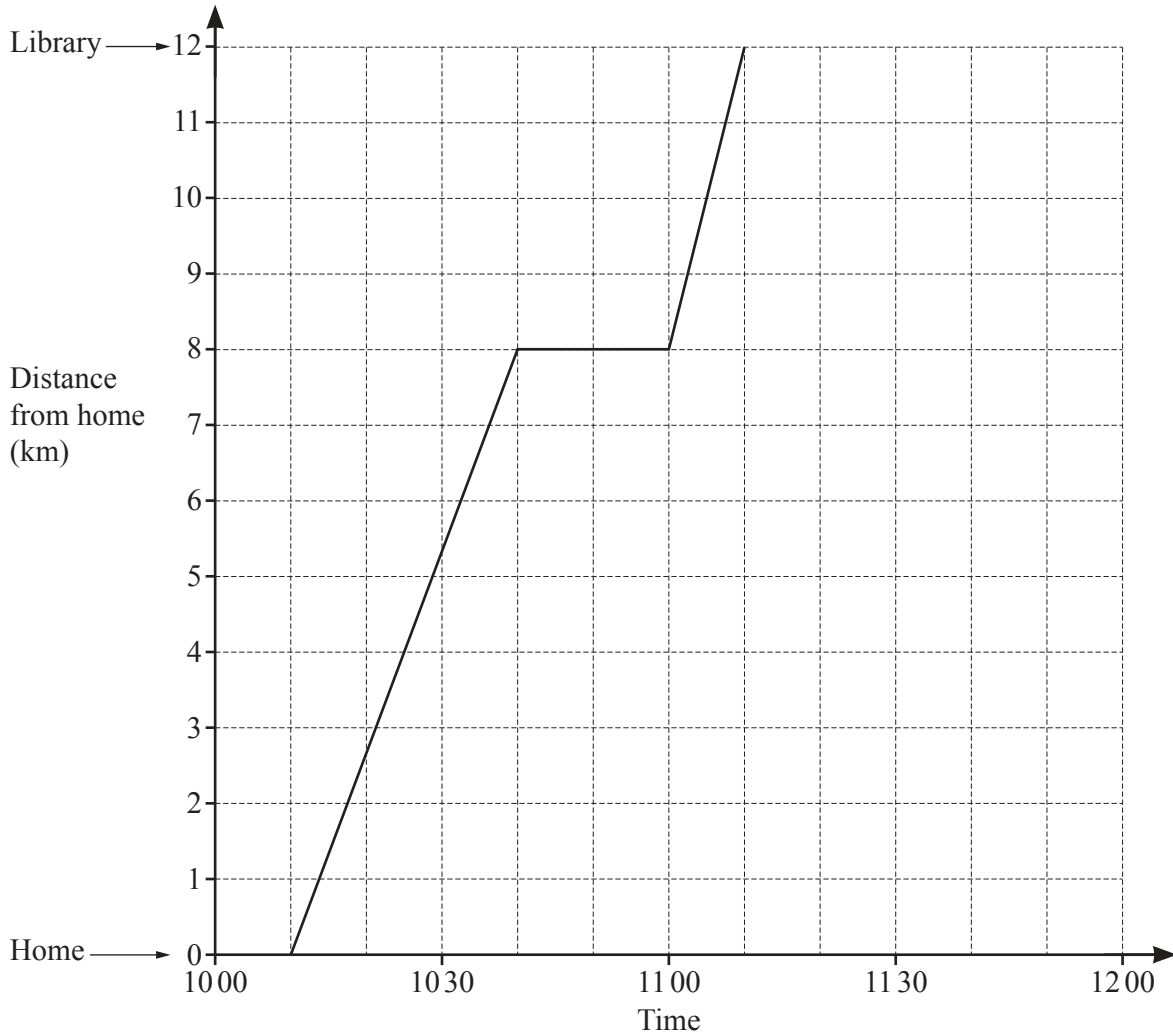
NOT TO
SCALE

The diagram shows a shape made from rectangles.
The shape has a total area of 517m^2 .

Find the value of x .

$$x = \dots\dots\dots [4]$$

- 7 Hua cycles from her home to the library.
The travel graph shows this journey.



- (a) At what time does she start her journey?

..... [1]

- (b) (i) Find her distance from home when she stops for a rest.

..... km [1]

- (ii) How long does she stop for a rest?

..... min [1]

- (c) Hua stays at the library for 10 minutes.
She then cycles home at a constant speed of 24 km/h.

Complete the travel graph.

[2]

- 8 A field, ABC , is in the shape of a triangle.
 $AC = 500$ m and $BC = 650$ m.

Using a ruler and compasses only, complete the scale drawing of the field ABC .
 Leave in your construction arcs.
 Use a scale of 1 cm to represent 100 m.
 The side AB has been drawn for you.



Scale: 1 cm to 100 m

[3]

- 9 Alan and Beth share \$1190 in the ratio Alan : Beth = 5 : 2.

Work out how much Alan receives.

\$ [2]

10 Work out.

(a) $\begin{pmatrix} 2 \\ -3 \end{pmatrix} + \begin{pmatrix} 5 \\ -1 \end{pmatrix}$

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

(b) $4 \begin{pmatrix} 2 \\ -5 \end{pmatrix}$

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

- 11 Rangan buys 3.6 kg of potatoes and 2.8 kg of leeks.
The total cost is \$13.72 .
Leeks cost \$2.65 per kilogram.

Find the cost of 1 kg of potatoes.

\$ [3]

12
$$T = \frac{49.2 - 9.59}{4.085 \times 2.35}$$

By writing each number correct to 1 significant figure, work out an estimate for T .
You must show all your working.

..... [2]

13 (a) Write 18 as the product of its prime factors.

..... [2]

(b) At a bus stop

- a red bus arrives every 18 minutes
- and
- a blue bus arrives every 24 minutes.

At 1047 a red bus and a blue bus arrive.

Find the next time when a red bus and a blue bus arrive together.

..... [3]

- 14 **Without using a calculator**, work out $2\frac{2}{3} \times 2\frac{3}{4}$.

You must show all your working and give your answer as a mixed number in its simplest form.

..... [3]

- 15 Change 4.37 litres into cubic centimetres.

..... cm^3 [1]

- 16 Make x the subject of this formula.

$$2y = 5x - 7$$

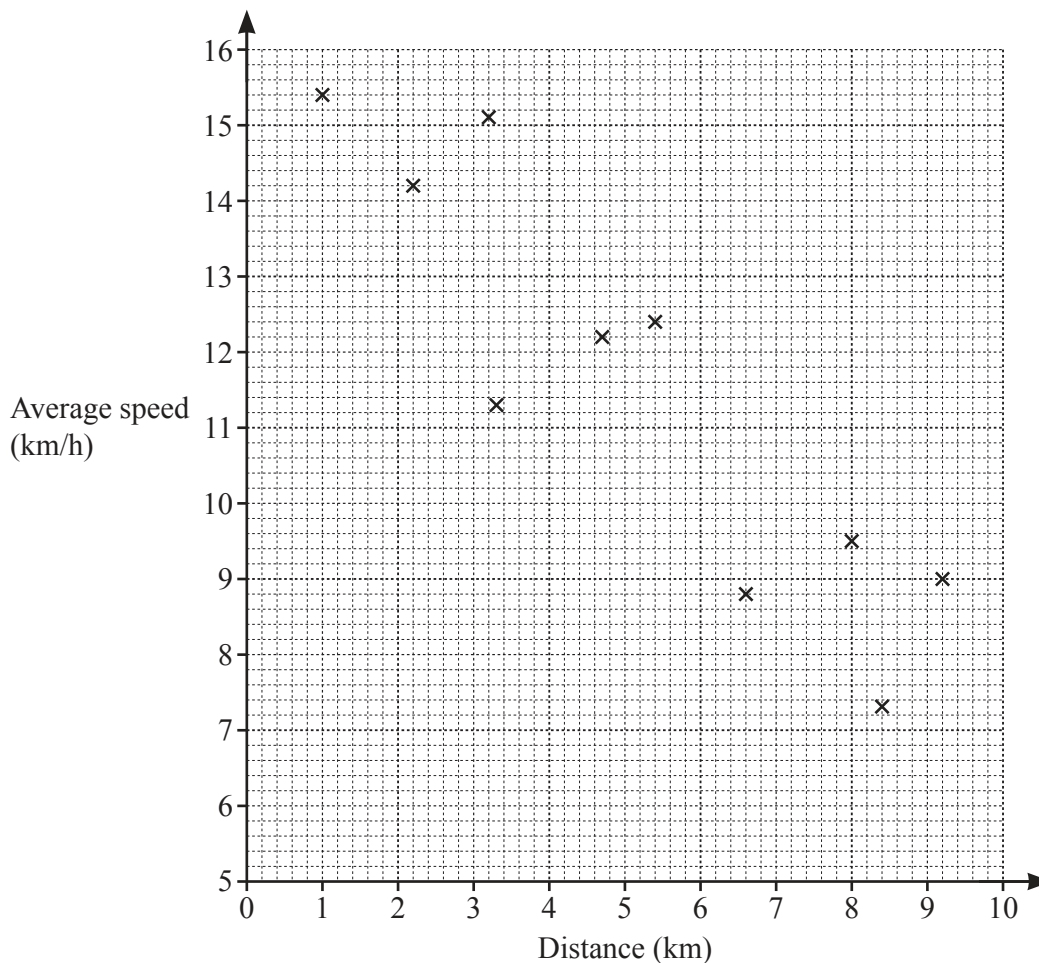
$x =$ [2]

- 17 Trina invests \$16 000 at a rate of 5% per year compound interest.

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

\$ [2]

- 18 Aisha records the distance she runs and her average speed. The results are shown in the scatter diagram.



- (a) The table shows the results of four more runs.

Distance (km)	4.2	5.7	7.1	8.8
Average speed (km/h)	13.4	11.8	9.8	8.3

On the scatter diagram, plot these points.

[2]

- (b) What type of correlation is shown in the scatter diagram?

..... [1]

- (c) On the scatter diagram, draw a line of best fit.

[1]

- (d) Use your line of best fit to estimate her average speed when she runs a distance of 6 km.

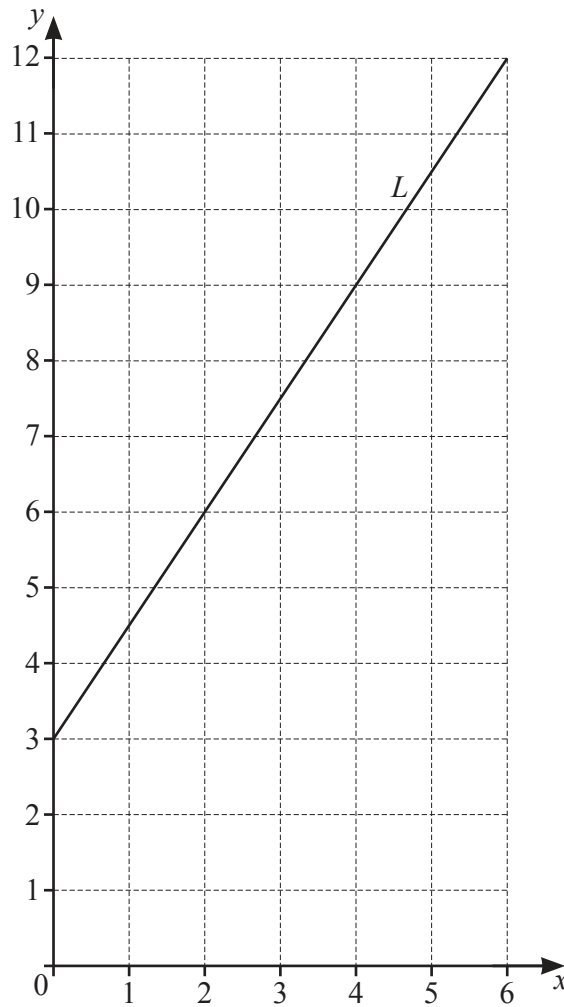
..... km/h [1]

19 A circle has a circumference of 56 mm.

Work out the radius of this circle.

..... mm [2]

20

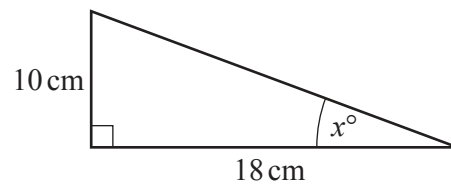


Find the equation of line L in the form $y = mx + c$.

$y =$ [2]

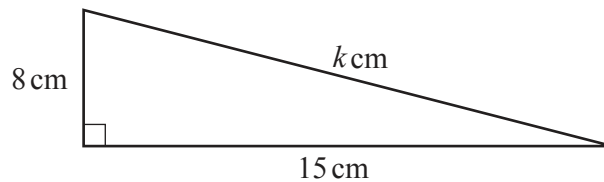
Question 21 is printed on the next page.

21 (a)

NOT TO
SCALECalculate the value of x .

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

(b)

NOT TO
SCALECalculate the value of k .

$$k = \dots\dots\dots [2]$$

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