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MATHEMATICS**0580/12**

Paper 1 (Core)

October/November 2024**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.



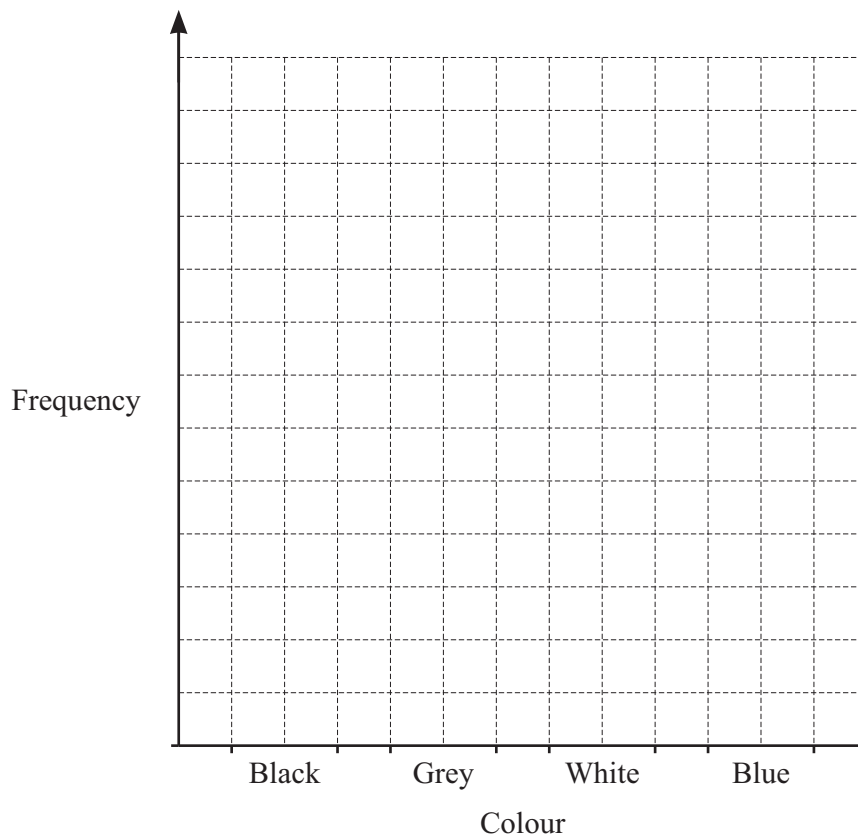
1 Write the number half a million in figures.

..... [1]

2 Anton records the colour of each car in a car park.
His results are shown in the table.

Colour	Black	Grey	White	Blue
Frequency	12	9	11	4

On the grid, draw a bar chart to show this information.
Complete the scale on the frequency axis.



[3]





3 Solve.

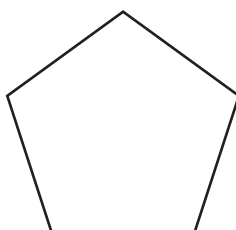
(a) $5x = 14$

$x = \dots\dots\dots$ [1]

(b) $x + 6 = 25$

$x = \dots\dots\dots$ [1]

4 The diagram shows a regular polygon.



(a) Write down the mathematical name for this polygon.

$\dots\dots\dots$ [1]

(b) On the diagram, draw all the lines of symmetry.

[2]

(c) Write down the order of rotational symmetry.

$\dots\dots\dots$ [1]

5 Write 53 683.588 correct to

(a) the nearest hundred

$\dots\dots\dots$ [1]

(b) 1 decimal place.

$\dots\dots\dots$ [1]





- 6 Triangle ABC has sides $AC = 4.2$ cm and $BC = 5.6$ cm.

Using a ruler and compasses only, construct triangle ABC .

Leave in your construction arcs.

The side AB has been drawn for you.



[2]

- 7 Put **one** pair of brackets in each calculation to make it correct.

(a) $15 + 12 - 3 \times 4 = 51$

[1]

(b) $15 + 12 - 3 \times 4 = 96$

[1]

- 8 Simplify.

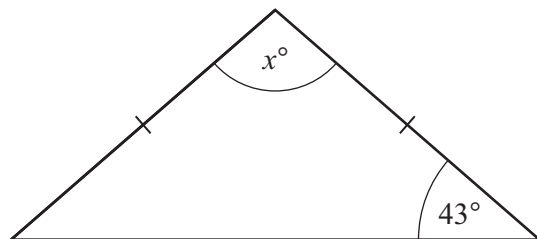
$$8c - d - 3c + 3d$$

..... [2]





- 9 The diagram shows an isosceles triangle.



NOT TO
SCALE

Find the value of x .

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

10

0.25	3.142	$\sqrt{3}$	-3	24	-0.4	1.2	$-\frac{1}{4}$
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Complete each statement with a number from the list.

..... is a natural number.

..... is an irrational number.

..... is the reciprocal of 4.

[3]

- 11 The temperature in town A is -8°C and the temperature in town B is 16°C .

(a) Find the difference in these two temperatures.

..... $^{\circ}\text{C}$ [1]

(b) The temperature in town A rises by 12°C .

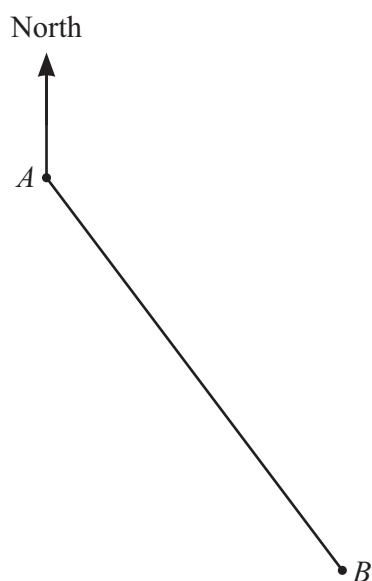
Find the temperature in town A now.

..... $^{\circ}\text{C}$ [1]





- 12 The scale drawing shows the positions of two ships, *A* and *B*.
The scale is 1 cm represents 6 km.



Scale : 1 cm to 6 km

- (a) Measure the bearing of ship *B* from ship *A*.

..... [1]

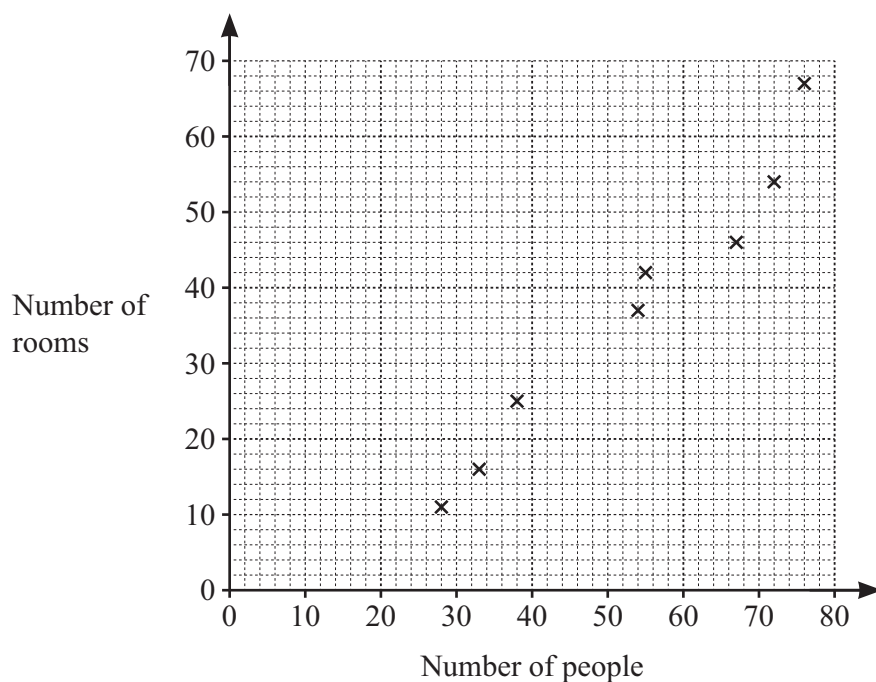
- (b) Find the actual distance between the two ships.

..... km [2]





- 13 The scatter diagram shows the number of rooms and the number of people in each of eight buildings.



- (a) One of the buildings has 67 rooms.

Write down the number of people in this building.

..... [1]

- (b) In another building there are 42 people and 33 rooms.

On the scatter diagram, plot this point.

[1]

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

[1]

- (ii) There are 45 people in a different building.

Find an estimate for the number of rooms in this building.

..... [1]

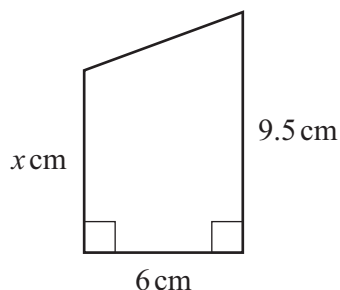
- (d) What type of correlation is shown in the scatter diagram?

..... [1]





14 The diagram shows a trapezium.



NOT TO
SCALE

The area of the trapezium is 42 cm^2 .

Calculate the value of x .

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

15 In a league, teams gain 4 points for each win, 2 points for each draw and bonus points.
A team has x wins, y draws and b bonus points.

Write down an expression, in terms of x , y and b , for the total number of points the team has.

$\dots\dots\dots$ [2]



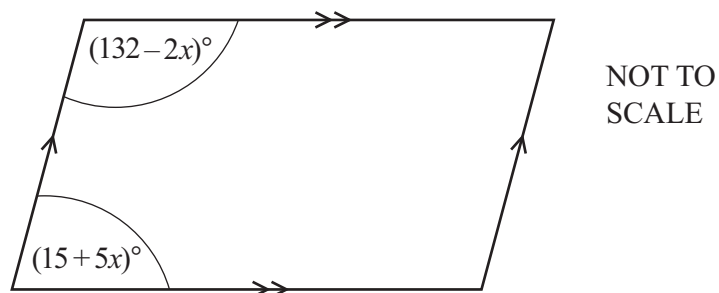


- 16 Dana invests \$3600 at a rate of 3.8% per year compound interest.

Calculate the value of her investment at the end of 5 years.

\$ [2]

- 17 The diagram shows a parallelogram.



Work out the size of the smallest interior angle of the parallelogram.

..... [4]



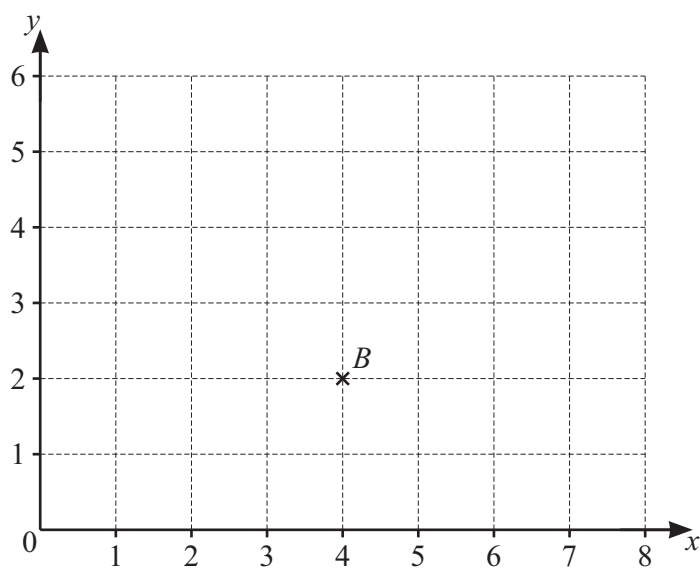


18 Simplify.

$$\frac{18x^6}{3x^2}$$

..... [2]

19



$$\overrightarrow{AB} = \begin{pmatrix} 3 \\ -2 \end{pmatrix}$$

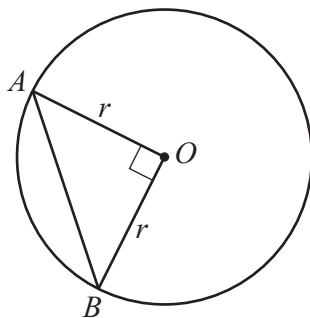
Mark point *A* on the grid.

[1]





- 20 Points A and B lie on a circle, centre O and radius r .



The area of the circle is 120 cm^2 .

Find the area of the right-angled triangle AOB .

..... cm^2 [3]

- 21 **Without using a calculator**, work out $2\frac{3}{4} \times 1\frac{1}{2}$.

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

..... [3]

Question 22 is printed on the next page.





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

$$2x + 7y = 34$$

$$3x + 5y = 18$$

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

$$y = \dots\dots\dots [4]$$

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