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3128780825

MATHEMATICS **0580/13**

Paper 1 (Core) **May/June 2023**

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. Any blank pages are indicated.

DC (LK/SG) 314001/2

1 Write 928 correct to the nearest ten.

..... [1]

2 Write down a fraction that is equivalent to $\frac{7}{9}$.

..... [1]

3 Work out.

$-4+6\times3$

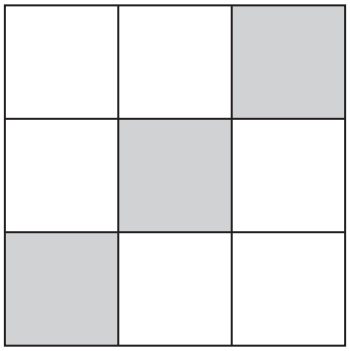
..... [1]

4 Bobby records the number of days a shop is open during 30 days.

	Tally	Frequency
Days open	𝍸 𝍸 𝍸 𝍸 |	
Days not open		

Complete the table. [2]

5



(a) Complete the statement.

The diagram has rotational symmetry of order ..... . [1]

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

[2]

6 Write down the reciprocal of 16 as a decimal.

..... [1]

7 The stem-and-leaf diagram shows the ages of 21 people.

1	6 9
2	1 4 4 5 8
3	2 6 7 9
4	0 2 4 6 8 9
5	3 4 5 7

Key : 1| 6 represents 16 years

(a) Find the fraction of people who are more than 30 years old.

..... [1]

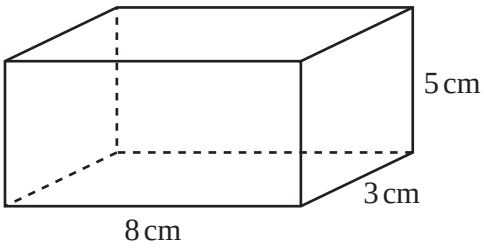
(b) Work out the range.

..... [1]

(c) Find the median.

..... [1]

8

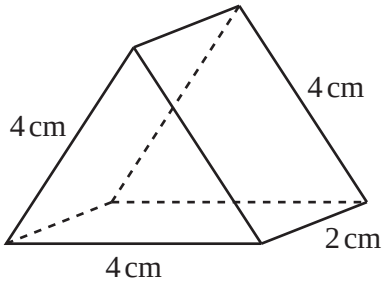


NOT TO SCALE

Find the total surface area of the cuboid.

..... cm^2 [3]

9



NOT TO SCALE

The diagram shows a triangular prism.

On the $1\,cm^2$ grid, draw a net of the prism.

[3]

10 Olga thinks that 87 is a prime number.

Is Olga correct?
Give a reason for your answer.

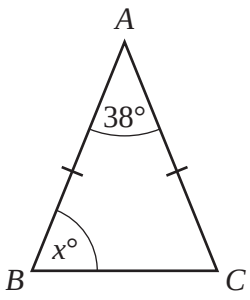
..... because ..... [1]

11 A film lasts for 2 hours 50 minutes.
The film ends at 2305.

Find the time the film starts.

..... [1]

12



NOT TO SCALE

Triangle ABC is isosceles.
Angle $BAC = 38°$ and $AB = AC$.

Find the value of x.

$x =$ ..... [2]

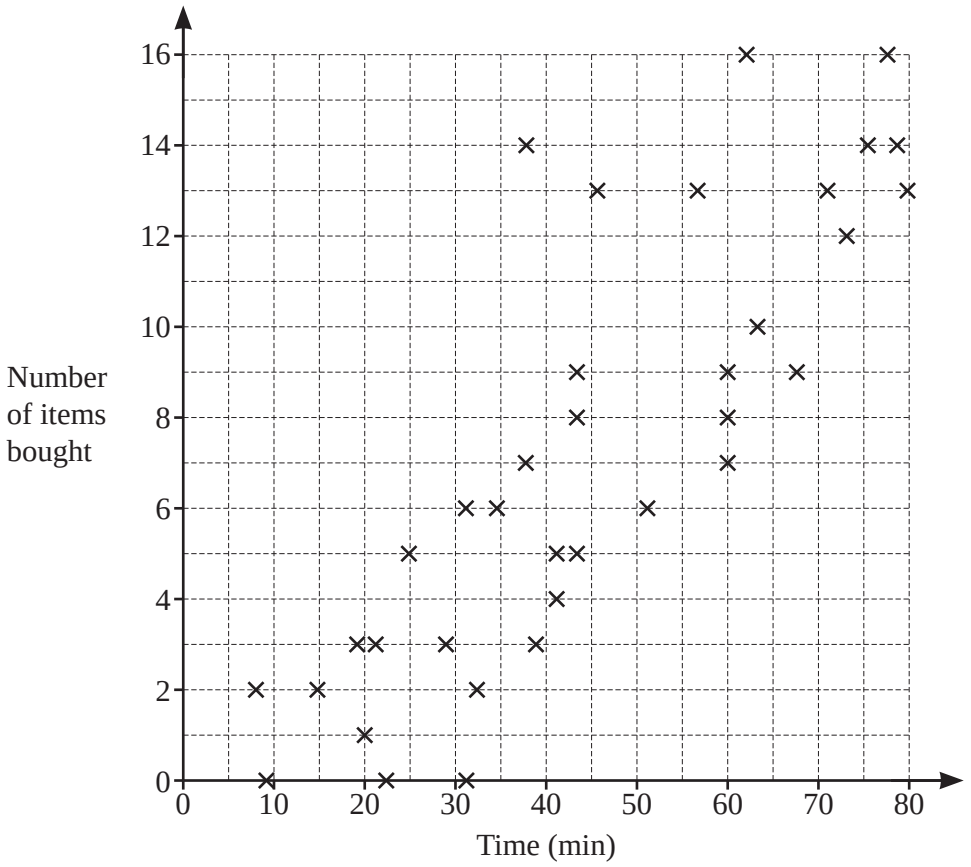
13 By writing each number in the calculation correct to 1 significant figure, find an estimate for the value of

$$\frac{6.8 \times 10.6}{3.2 - 0.98}.$$

You must show all your working.

..... [2]

14 The scatter diagram shows information about the time spent in a shop and the number of items bought.



(a) What type of correlation is shown on the scatter diagram?

..... [1]

(b) Describe the relationship between the time spent in the shop and the number of items bought.

.....

..... [1]

(c) Draw a line of best fit on the scatter diagram. [1]

15 Simplify $d^8 \div d^2$.

..... [1]

16 Maddie changes 4000 Swiss francs into dollars when the exchange rate is $1 = 0.913 Swiss francs.

Work out how many dollars she receives.

$ ..... [1]

17 Find the highest common factor (HCF) of 32 and 120.

..... [2]

18 The probability that Tom is late for school is 0.12 .
There are 200 school days this year.

Work out the expected number of times that Tom is late for school this year.

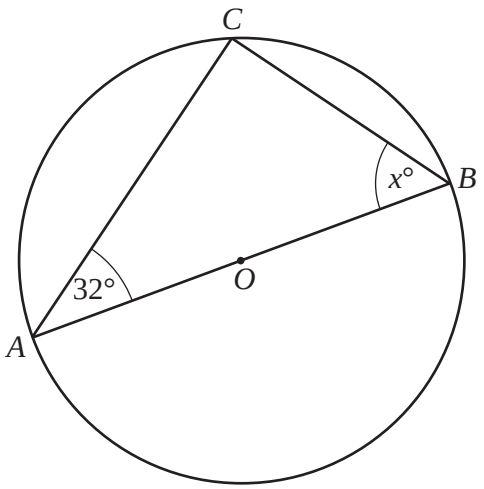
..... [1]

19 Expand and simplify.

$(x-5)(x+8)$

..... [2]

20



NOT TO SCALE

The diagram shows a circle, centre *O*, diameter *AB*.
A, *B* and *C* lie on the circumference of the circle.

(a) Write down the mathematical name of the line *AC*.

..... [1]

(b) Find the value of *x*.
Give a geometrical reason for your answer.

x = ... because ..... [2]

21 A spinner has five sides.
Each side is painted red, blue, green, yellow or orange.
The table shows some of the probabilities of the spinner landing on each colour.

Colour	Red	Blue	Green	Yellow	Orange
Probability	0.3	0.16	0.18	0.25	

(a) Complete the table. [2]

(b) Dan spins the spinner once.

Find the probability that the spinner lands on red or blue.

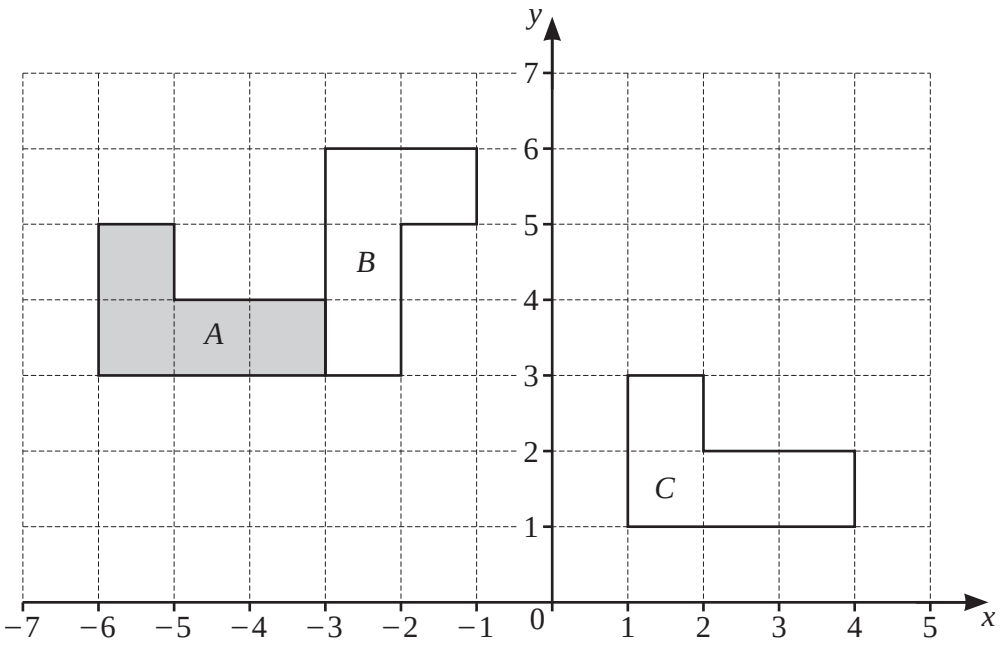
..... [2]

22 Vanessa invests $8500 at a rate of 3.5% per year compound interest.

Calculate the value of her investment at the end of 6 years.
Give your answer correct to the nearest dollar.

$ ..... [3]

23 The diagram shows three shapes, *A*, *B* and *C*, on a $1\,cm^2$ grid.



Describe fully the **single** transformation that maps

(a) shape *A* onto shape *B*

.....

..... [3]

(b) shape *A* onto shape *C*.

.....

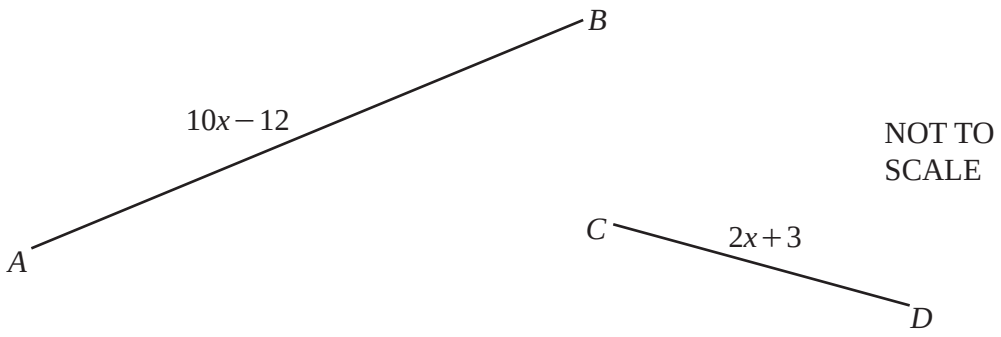
..... [2]

24 **Without using a calculator**, work out $5\frac{11}{12}+2\frac{1}{4}$.

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

..... [3]

25 In this question, both lengths are in centimetres.



The diagram shows two lines, *AB* and *CD*.
The length of *AB* is $10x-12$.
The length of *CD* is $2x+3$.
Line *AB* is 3 times as long as line *CD*.

Work out the value of *x*.

$x =$ ..... [4]

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