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MATHEMATICS

0580/13

Paper 1 (Core)

October/November 2021

1 hour

You must answer on the question paper.

You will need: Geometrical instruments

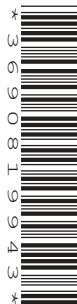
INSTRUCTIONS

- 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.



2

1 Write

(a) $\frac{1}{2}$ as a percentage,

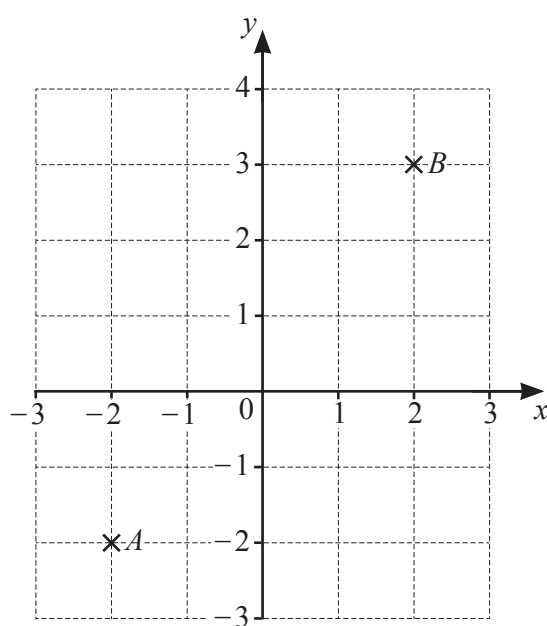
..... % [1]

(b) 0.7 as a fraction,

..... [1]

(c) $\frac{11}{20}$ as a decimal.

..... [1]

2 Points A and B are plotted on the grid.(a) Write down the coordinates of point B .

(..... ,) [1]

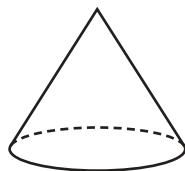
(b) Write $\overrightarrow{AB}$ as a vector.
$$\begin{pmatrix} \\ \end{pmatrix} \quad [1]$$
(c) On the grid, plot point C at $(-2, 3)$.

[1]

3

- 3** Find the number of minutes in $4\frac{1}{2}$ hours.

..... min [1]

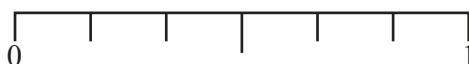
4

Write down the mathematical name of this solid.

..... [1]

- 5** Cheng spins a fair 6-sided spinner numbered 1 to 6.

On the probability scale, draw an arrow ($\downarrow$) to show the probability that the spinner lands on 4.



[1]

6

62 43 16 21 73 16 33 16 35

For this list of numbers find

- (a)** the mode,

..... [1]

- (b)** the median.

..... [2]

4

7 $r = 2t + 3u$

Work out the value of t when $r = 18$ and $u = 4$.

$t =$ [2]

- 8 The temperature at midnight was -8°C .
The temperature at noon is 6°C .

(a) Work out the difference between these two temperatures.

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

(b) The temperature at 7 am is 5°C higher than the temperature at midnight.

Work out the temperature at 7 am.

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

- 9 The probability that it rains tomorrow is 0.47 .

Find the probability that it does not rain tomorrow.

..... [1]

5**10** Write 26 g as a percentage of 208 g.

..... % [1]

11

11 13 15 17 19

From this list, write down the number that is both a prime number and a factor of 195.

..... [1]

12 (a) = $\neq$ > <

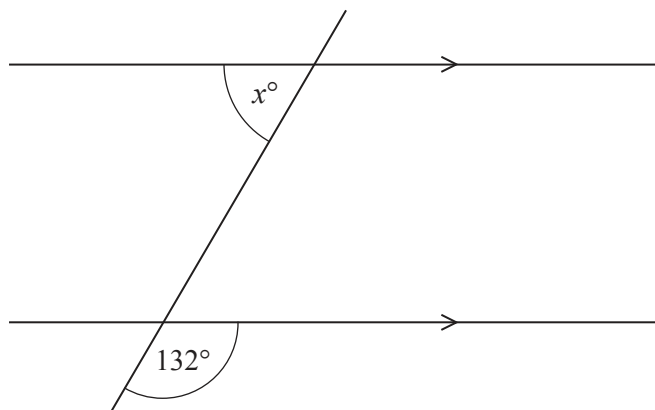
Put a ring around each of the symbols that make this statement correct.

0.5 5% [1]

(b) Insert one pair of brackets to make this statement correct. $7 - 3 - 1 + 2 = 7$ [1]

6

13

NOT TO
SCALE

The diagram shows two parallel lines intersecting a straight line.

Find the value of x .

$x =$ [2]

14 (a) These are the first four terms of a sequence.

17 23 29 35

Find the next term.

..... [1]

(b) These are the first four terms of a different sequence.

3 -1 -5 -9

(i) Find the next term in this sequence.

..... [1]

(ii) Find the n th term.

..... [2]

7

- 15** Sara takes 5 tests.
Her mean score is 62.
She takes another test and her mean score is now 68.

Work out her score in the sixth test.

..... [3]

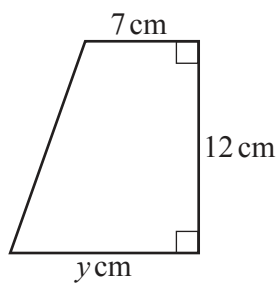
- 16** Nina changes 153 euros into dollars when the exchange rate is $\$1 = 0.9$ euros.

Calculate the amount Nina receives.

\$ [1]

8

17

NOT TO
SCALE

The area of this trapezium is 96 cm^2 .

Find the value of y .

$y =$ [3]

- 18** Marek buys a computer for \$420.
He sells it at a loss of 15%.

Calculate the selling price of this computer.

\$ [2]

- 19** Calculate the radius of a circle with circumference 26 cm.

..... cm [2]

9

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

$$\frac{4.3 \times 30.7}{6.6 - 1.8}.$$

..... [2]

- 21 Find the interior angle of a regular 7-sided polygon.

..... [2]

- 22 **Without using a calculator**, work out $\frac{11}{12} + \frac{3}{4}$.

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

..... [3]

10**23 (a)** Simplify.

$$32g^{32} \div 4g^4$$

..... [2]

(b) Factorise completely.

$$10j - 15j^2$$

..... [2]

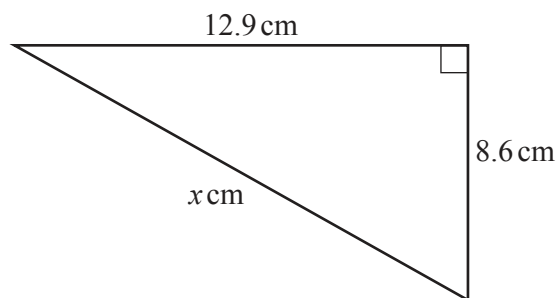
(c) Expand the brackets and simplify.

$$(x + 7)(x + 3)$$

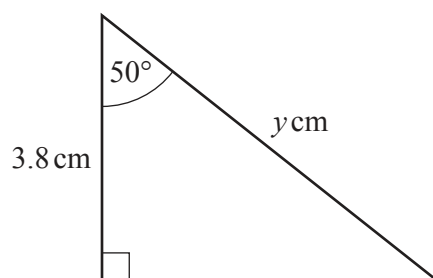
..... [2]

11

24 (a)

NOT TO
SCALECalculate the value of x . $x = \dots\dots\dots$ [2]

(b)

NOT TO
SCALEShow that the value of y is 5.9, correct to 2 significant figures.

[3]

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