

Answer all questions in the spaces provided.

Do not write
outside the
box

1 (a) Which of these is a cube number? Circle your answer.

[1 mark]

3, 4, 9, 25, 49, 64, 81

1 (b) Solve $y - 12 = 84$

[1 mark]

$y =$ _____

1 (c) Simplify $36 : 72$

[1 mark]

2 Here is a list of numbers.

2 4 6 8 10 8 10 8 6 7

2 (a) Write down the mode.

[1 mark]

Answer.....

2 (b) Work out the median.

[2 marks]

Answer.....

2 (c) Work out the range.

[1 mark]

Answer.....

—
7

Turn over ►

3 (a) Work out the value of $6x - 9y$ when $x = -5$ and $y = -4$

[2 marks]

Answer.....

3 (b) $c > 5$ $d < 3$ $c - d = 7$

[2 marks]

Work out a possible pair of values for c and d .

$c =$

$d =$

4 (a) Complete these statements with one of the following symbols = > < >

[3 marks]

- 7 2

$95 \div 5$ 25.29

$(-25)^2$ 625

4 (b) Match the algebra to the correct description.
One has been done for you.

[3 marks]

$10b = 50$

$8a > 16$

$4a + a = 5a$

$4a + 2b$

Formula

Equation

Inequality

Identity

Expression



5 (a) Match the name to the correct sequence.
One has been done for you.

[2 marks]

Do not write
outside the
box

Name	Sequence
Quadratic sequence	3, 6, 9, 12, 15....
Fibonacci - type sequence	1, 1, 2, 3, 5, 8, 13, 21....
Linear sequence	-5, 3, 6, 7, 9....
	2, 7, 14, 23, 34...

5 (b) Simplify $\frac{a^2 \times a^{-5} \times b^3 \times b^2}{a^2 \times b^4}$.

[2 marks]

6 (b) Factorise fully $x^2 + 10x + 25$

[2 marks]

6 (c) Simplify $\frac{(4b^2c^2)^3}{20bc}$

[2 marks]

7

$$A = 2^3 \times 5^2 \times 3^3$$

$$B = 4 \times 5^2 \times 3^2$$

7 (a) Write down the number that A represents.

[1 mark]

Answer.....

7 (b) Find the Highest Common Factor (HCF) of A and 2B

[2 marks]

Answer.....

8 (a) Three apples have masses of 120 g, 150 g and 190 g. [2 marks]
Show that their total mass is between $\frac{1}{5}$ and $\frac{1}{2}$ of a kilogram.

Answer..... grams.

8 (b) For each statement, tick the correct box. [3 marks]

Always true Sometimes true Never true

One of the angles in a triangle is 60°

One of the angles in a triangle is greater than 90°

One of the angles in a triangle is more than 180°

9 (a) In a classroom, the ratio of boys to girls is 6 : 4
Write the fraction of students who are boys.

[1 mark]

Answer _____

In the same classroom

the ratio of students who prefer French to those who prefer Spanish is 3 : 7

9 (b) Write the percentage of students who prefer Spanish.

[1 mark]

Answer _____ %

10 (a) Eeshu buys a mobile for £800.
She pays a deposit of £150.
She pays the rest in 6 equal monthly payments.
Work out the amount of each monthly payment.

[3 marks]

10 (b) If $y = 9$

[2 marks]

Work out the value of $y^2 + 9y$

Answer

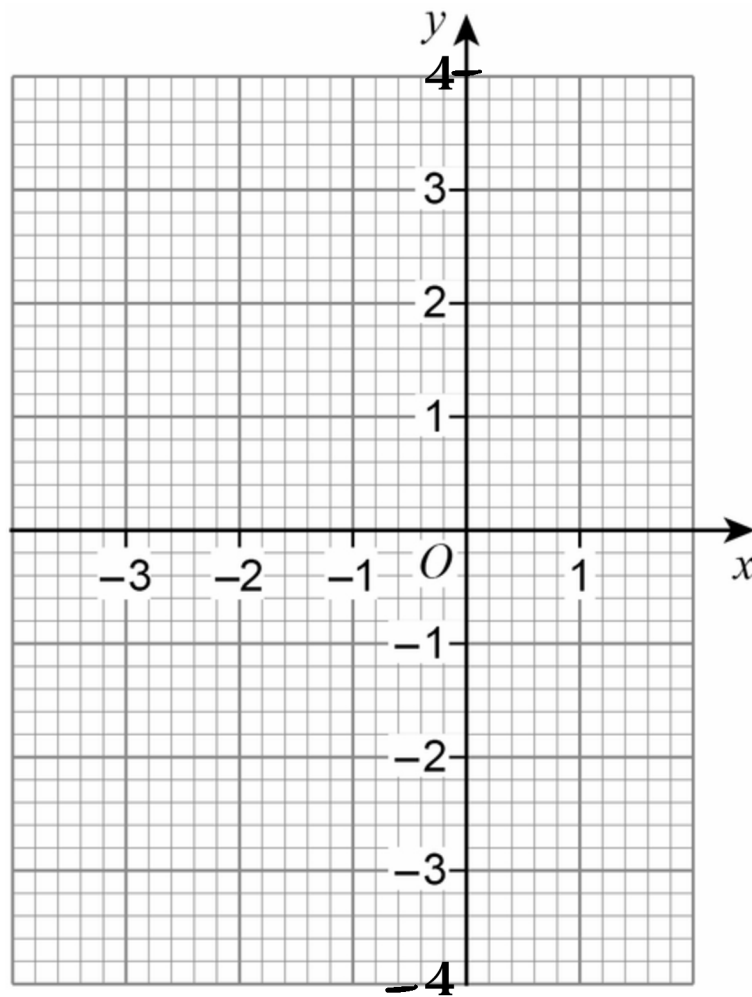
11 (a) Complete the table of values for $y = x^2 + 3x$

[2 marks]

x	-3	-2	-1	0	1
y		-2		0	

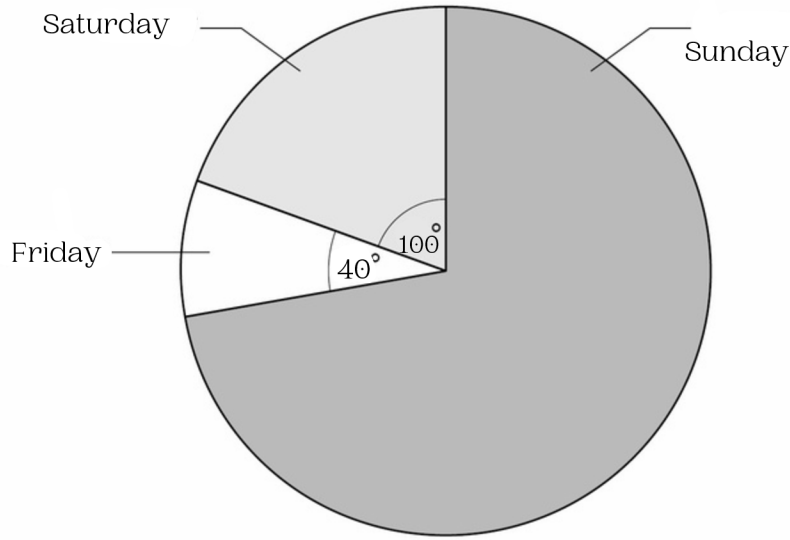
11 (b) Draw the graph of $y = x^2 + 3x$ for values of x from -3 to 1

[2 marks]



12 The pie chart shows information about number of visitors at a local museum during three- day weekend.

[3 marks]



There were 85 more visitors on Saturday than on Friday.
Calculate the number of visitors to the museum on Sunday

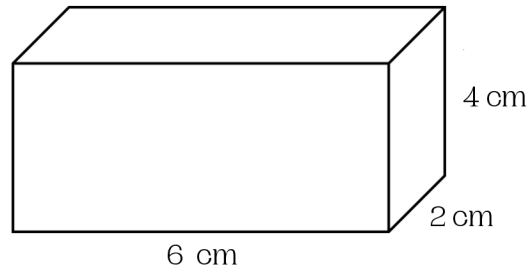
Answer _____

7

Turn over ►

14 (a) Here is a cuboid made from metal.

[3 marks]



The mass of the cuboid is 1 kg. Work out the density of the cuboid in g/cm^3

Answer _____ g/cm^3

14 (b) Write down the two solutions of $(x - 2)(x + 4) = 0$

[1 mark]

Answer _____

15

Eeshu has £100.

She saves some money and gives the rest to her two sisters.

The ratio of money saved money given to her sisters is 1:4.

She gives each of her two sisters the same amount.

How much money does each sister receive?

[3 marks]

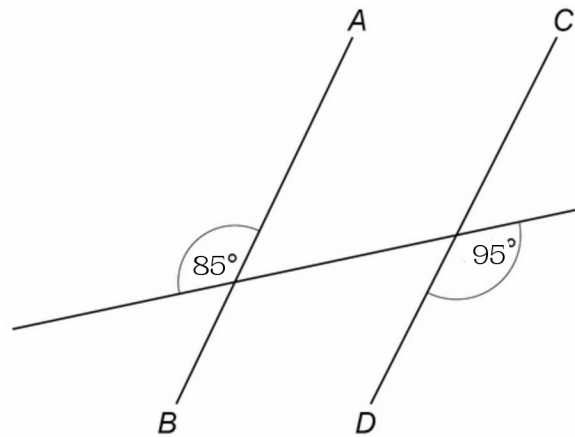
Answer

17 Simplify fully $15a + 9b - 5a + 6b$

[2 marks]

Answer _____

18 Here are three straight lines.



Not drawn
accurately

[2 marks]

Are the lines AB and CD parallel? Tick a box.

Yes

No

Show working to support your answer.

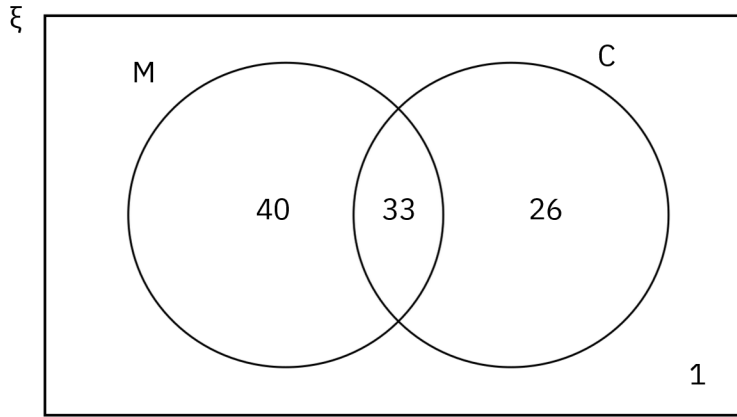
19

A coffee shop owner recorded the orders of 100 visitors.

ξ = the visitors to the coffee shop

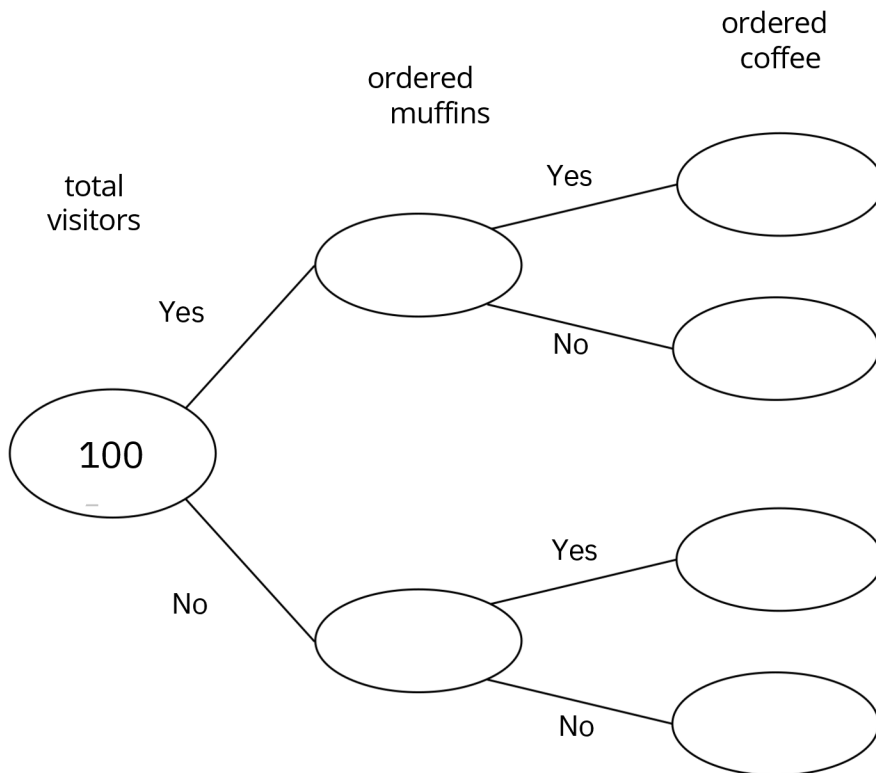
M = ordered muffins

C = ordered coffee



[4 marks]

Complete the frequency tree below.



20 (a) The term-to-term rule for a sequence is

[2 marks]

add 3 then divide by 2

The 1st term is 5

Work out the 3rd term.

Answer _____

20 (b) The term-to-term rule for a different sequence is

[2 marks]

multiply by 2 then subtract 7

The 3rd term of this sequence is 41.

Work out the 1st term of the sequence.

Answer _____

- 21 Let a be a number greater than 5 and less than 8.
Let b be a number greater than 2 and less than 5

[2 marks]

$$a + b = 11.$$

Work out a possible pair of values for a and b.

a = _____ b = _____

22 $a = \begin{pmatrix} 5 \\ 2 \end{pmatrix}$ $b = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$

Circle the vector $a - b$

$\begin{pmatrix} 4 \\ 0 \end{pmatrix}$ $\begin{pmatrix} 4 \\ 4 \end{pmatrix}$ $\begin{pmatrix} 6 \\ 4 \end{pmatrix}$ $\begin{pmatrix} 6 \\ 0 \end{pmatrix}$

[1 mark]

Circle the vector $a + b$

$\begin{pmatrix} 6 \\ 4 \end{pmatrix}$ $\begin{pmatrix} 7 \\ 3 \end{pmatrix}$ $\begin{pmatrix} 7 \\ 0 \end{pmatrix}$ $\begin{pmatrix} 6 \\ 0 \end{pmatrix}$

[1 mark]

END OF QUESTIONS