

Ratio Problem Solving

Ratios with Fractions, Decimals & Percentages / Multiple Ratios

Easy (5 questions)	/10
Medium (6 questions)	/19
Hard (6 questions)	/17
Total Marks	/46

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Easy Questions

- 1 A pattern of tiles is being created in a bathroom, consisting of black and white tiles.

$\frac{2}{7}$ of the tiles are black.

- (i) Write down the ratio of white tiles to black tiles.

[1]

- (ii) There is a total of 42 tiles.

Find the number of white tiles.

[1]

(2 marks)

- 2 A display in a garden centre contains red and yellow flowers in the ratio 3 : 7.

There are 12 more yellow flowers than red flowers.

Find the total number of flowers in the display.

(2 marks)

- 3** For a football team, the ratio of the number of goals scored to the number of goals conceded is 13 : 9.

Over the course of a year, the team conceded 72 goals.

Find the number of goals scored.

(2 marks)

- 4** In a hotel at breakfast time, the ratio of sausages to eggs is 3 : 1.

The ratio of tomatoes to sausages is 2 : 9.

Find the ratio of tomatoes to eggs.

Give your answer in its simplest form.

(2 marks)

- 5** Anna, Bruce, and Charlie share a sum of money.

Anna receives $\frac{1}{4}$ of the money.

Bruce receives $\frac{3}{8}$ of the money.

Charlie receives the rest of the money.

Write a ratio describing the money received by Anna, Bruce, and Charlie respectively.

Write the ratio in its simplest form.

Anna : Bruce : Charlie = : :

(2 marks)

Medium Questions

- 1 Ahmed, Beatrice, and Chen each earn the same monthly salary.

Each month,

- Ahmed **saves** 22% of his salary and spends the rest of his salary.
- Beatrice spends $\frac{7}{10}$ of her salary, and **saves** the rest of her salary.
- The amount of salary Chen saves : the amount of salary he spends = 3 : 17.

Work out who saves the most of their salary each month.

You must show how you get your answer.

(4 marks)

- 2 In a car park there are silver, white, and black cars.

The ratio of silver cars to white cars is 3 : 5.

The ratio of white cars to black cars is 2 : 3.

Find the ratio of silver cars : black cars in its simplest form.

(3 marks)

3 (a) There are only small, medium, and large sized shirts sold in a shop.

The number of small, medium, and large sized shirts are in the ratio 3 : 7 : 6.

Work out what percentage of the shirts are sized **small or large**.

Write your answer correct to 2 decimal places.

(2 marks)

(b) There are 36 more medium shirts than small shirts.

Find the total number of shirts.

(2 marks)

4 Alex and Chris share sweets in the ratio Alex : Chris = 7 : 3.

Alex receives 20 more sweets than Chris.

Work out the number of sweets Chris receives.

(2 marks)

5 Zach is looking at the costs of a holiday.

The ratio of the costs flights : hotels = 3 : 8.

The cost of the flights is \$861.

Work out the total cost of flights and hotels.

\$

(2 marks)

6 A field is planted with four types of flowers: tulips, roses, daffodils and lilies.

The ratio of the number of tulips to the number of roses is 2:5.

The number of daffodils and the number of lilies are each 1.5 times the number of tulips.

There are 832 flowers in total.

Work out how many roses there are.

(4 marks)

Hard Questions

1 Given that $\frac{a}{b} = \frac{3}{7}$ and $\frac{b}{c} = \frac{4}{5}$

find $a : b : c$.

(3 marks)

- 2 A bag contains yellow balls, pink balls and green balls only.

The ratio yellow balls : pink balls : green balls = 7 : 3 : 5.

There are 42 yellow balls in the bag.

Work out the total number of balls in the bag.

(2 marks)

- 3 A bag contains red marbles, green marbles and blue marbles only.

The ratio of the number of marbles of each colour is

$$\text{red : green : blue} = 12 : 5 : 2.$$

There are 112 more red marbles than green marbles.

Work out the number of blue marbles.

(2 marks)

4 A farmer has 45 horses and 20 cows.

i) Write this as a ratio of horses : cows.
Give your answer in its simplest form.

[1]

ii) The farmer wants the ratio of horses : cows to equal 5 : 3.
He keeps his 45 horses and buys some more cows.

Work out the number of cows he must buy.

[2]

(3 marks)

5 Nadira has some T-shirts that are either white or blue or green.
The numbers of T-shirts are in the ratio white : blue : green = 5 : 4 : 1.
48 of the T-shirts are blue.

Work out the total number of T-shirts.

(3 marks)

6 A sports centre hires our tennis courts, football pitches and basketball courts.

Each tennis court session lasts 30 minutes.

Each football pitch session lasts 60 minutes.

Each basketball court session lasts 45 minutes.

On Saturday, the number of bookings for

tennis courts : football pitch : basketball court

was in the ratio 6 : 5 : 3

A total of 1230 minutes of booking were made that day.

Work out the total number of minutes of basketball bookings.

(4 marks)