Relating Ratio to Fractions/Percentages

SCAN ME

REVISE THIS TOPIC

1 A bag contains only red and green counters.

red counters : green counters = 3 : 5

What fraction of the counters in the bag are green? **[1 mark]**

Answer $\frac{5}{8}$

2 The ratio of adults to children at a show is 13 : 2

What fraction of the people at the show are adults? **[1 mark]**

Answer $\frac{13}{15}$

3 A driving test centre recorded the number of passes and fails during May.

passes : fails = 6 : 7

What fraction of the driving tests were passes? **[1 mark]**

Answer $\frac{6}{13}$

4 Magnus records the results of his chess games during a tournament.

For his games, wins : draws : losses = 6 : 1 : 2

What fraction of the games does he lose? **[1 mark]**

Answer $\frac{2}{9}$

4

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5 A country received some medals at a sporting event.

The ratio of gold medals to silver medals to bronze medals was 2 : 1 : 5

5 (a) What fraction of the medals were silver? **[1 mark]**



Answer $\frac{1}{8}$

5 (b) What fraction of the medals were gold or silver? **[1 mark]**



Answer $\frac{3}{8}$

6 Students in a school must study one language from French, German or Spanish.

The ratio of students studying French to German to Spanish is 3 : 4 : 8



6 (a) What fraction of the students study German? **[1 mark]**

Answer $\frac{4}{15}$

6 (b) What fraction of the students do **not** study French?

Give your answer in its simplest form. **[2 marks]**



$\frac{12}{15} = \frac{4}{5}$

Answer $\frac{4}{5}$

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7 Penny throws a coin several times and records whether it lands on heads or tails.

$\frac{3}{7}$ of the throws landed on heads.

Write down the ratio number of heads : number of tails **[1 mark]**

Answer 3 : 4

8 Mark takes a maths test.

He gets $\frac{7}{10}$ of the answers correct and the rest incorrect.

For Mark's answers, write down the ratio correct : incorrect **[1 mark]**

Answer 7 : 3

9 3/4 Three quarters of the students in a class walk to school.

For the students in the class, write down the ratio

students who walk to school : students who do not walk to school **[1 mark]**

Answer 3 : 1

10 Tom runs a YouTube channel.

$\frac{1}{9}$ of the channel's viewers are subscribed.

Write down the ratio subscribed viewers : not subscribed viewers **[1 mark]**

Answer 1 : 8

9

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11 A bag contains only blue and yellow counters.

blue counters : yellow counters = 1 : 9

11 (a) What percentage of the counters in the bag are blue? **[1 mark]**



Answer 10 %

11 (b) What percentage of the counters in the bag are yellow? **[1 mark]**



Answer 90 %

12 Gary is practising penalty kicks.

Penalty kicks scored : penalty kicks missed = 2 : 3



What percentage of Gary's penalty kicks were scored? **[2 marks]**

$\frac{2}{5} \overset{\times 20}{=} \frac{40}{100}$

Answer 40 %

13 A cinema records which seats are occupied during a film.

Occupied seats : empty seats = 7 : 13



What percentage of the seats were occupied? **[2 marks]**

$\frac{7}{20} \overset{\times 5}{=} \frac{35}{100}$

Answer 35 %

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14 45% of the students in a class own a pet.

Write down the ratio of students who own a pet to those who do not own a pet.

Give your answer in its simplest form. **[2 marks]**

÷5 (45 : 55) ÷5

9 : 11

Answer 9 : 11

15 12% of the flights from an airport were cancelled.

Write down the ratio flights cancelled : flights not cancelled

Give your answer in its simplest form. **[2 marks]**

÷2 (12 : 88) ÷2

÷2 (6 : 44) ÷2

3 : 22

Answer 3 : 22

16 75% of the customers of a restaurant left a tip.

Write the ratio of customers who left a tip to customers who did not leave a tip.

Give your answer in its simplest form. **[2 marks]**

÷25 (75 : 25) ÷25

3 : 1

Answer 3 : 1

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17 A delivery company records whether its parcels are delivered on time or late.

On Monday $\frac{5}{6}$ of the deliveries were on time and the rest were late.

17 (a) For Monday, write down the ratio deliveries on time : deliveries late **[1 mark]**

Answer 5 : 1

17 (b) On Friday, deliveries on time : deliveries late = 4 : 5 **[1 mark]**

Write down the fraction of deliveries on Friday that were on time.

Answer $\frac{4}{9}$

17 (c) On Saturday, 20% of the deliveries were **late**. **[2 marks]**

For Saturday, write down the ratio deliveries on time : deliveries late

÷20 (80 : 20) ÷20
4 : 1

Answer 4 : 1

17 (d) On Sunday, deliveries on time : deliveries late = 21 : 4 **[2 marks]**

What percentage of the deliveries on Sunday were on time?

$\frac{21}{25} \overset{\times 4}{=} \frac{84}{100}$ (×4)

Answer 84 %

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18 A treasure chest contains only gold and silver coins.

Gold coins: silver coins = 3 : 5

What percentage of the coins are gold? **[2 marks]**

$\frac{3}{8} \times 100 = 37.5$

Answer 37.5 %

19 A factory produces milk chocolate, white chocolate and dark chocolate bars.

milk chocolate bars : white chocolate bars : dark chocolate bars = 17 : 12 : 11

What percentage of the bars are milk chocolate? **[2 marks]**

$\frac{17}{40} \times 100 = 42.5$

Answer 42.5 %

20 A car manufacturer makes petrol, diesel and electric cars.

One year the factory produces cars in the following ratio:

petrol : diesel : electric = 45 : 44 : 36

What percentage of the cars produced are electric cars? **[2 marks]**

$\frac{36}{125} \times 100 = 28.8$

Answer 28.8 %

12

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21 A fruit farm has apples trees, pears trees and plums trees.

$\frac{1}{4}$ of the fruit trees on the farm are apple trees.

$\frac{2}{3}$ of the fruit trees on the farm are pear trees.

Work out the ratio apple trees : pear trees : plum trees

Give your answer in its simplest form. **[3 marks]**

$\frac{1}{4} = \frac{3}{12}$ apple $\quad \frac{3}{12} + \frac{8}{12} = \frac{11}{12}$

$\frac{2}{3} = \frac{8}{12}$ pear $\quad \frac{12}{12} - \frac{11}{12} = \frac{1}{12}$ plum

Answer 3 : 8 : 1

22 A recycling centre processes paper, plastic and glass.

$\frac{9}{20}$ of the material processed is paper.

$\frac{2}{5}$ of the material processed is plastic.

Work out the ratio paper : plastic : glass

Give your answer in its simplest form. **[3 marks]**

$\frac{9}{20}$ paper $\quad \frac{9}{20} + \frac{8}{20} = \frac{17}{20}$

$\frac{2}{5} = \frac{8}{20}$ plastic $\quad \frac{20}{20} - \frac{17}{20} = \frac{3}{20}$

glass

Answer 9 : 8 : 3

$\frac{\quad}{6}$

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