

RATIOS AS LINEAR FUNCTIONS

Task 1

- 1) The ratio of blue to red counters is 2 : 3. What fraction of the counters are blue?
- 2) The ratio of red to orange sweets is 3 : 7. What fraction of the sweets are orange?
- 3) A paint mixes yellow and blue in the ratio 4 : 1. What fraction of the paint is yellow?
- 4) In a cinema the ratio of adults to children is 1 : 6. What fraction of the people are adults?
- 5) The ratio of right-handed to left-handed pupils in a class is 7 : 2. What percentage of the pupils are left-handed? Give your answer to the nearest percentage.
- 6) A bag has red, green and yellow counters in the ratio 9 : 4 : 7. What percentage of the counters are green?
- 7) At a school, pupils take Spanish, French and German in the ratio 5 : 9 : 4. What fraction of the pupils do not study Spanish?
- 8) A bag contains red and blue counters. $\frac{3}{8}$ of the counters are red. Write the ratio of red to blue counters.
- 9) A drink is made with 30% syrup, and the rest is sparkling water. Write the ratio of syrup to sparkling water in the drink. Give your answer in simplest form.
- 10) The ratio A : B is 2 : 5. What fraction of the ratio represents A?
- 11) In a sale $\frac{2}{3}$ of the items in a store are marked down. Write the ratio of the items marked down, to the items that are full priced.
- 12) In a jewellery store, $\frac{4}{11}$ of the jewellery is silver and the rest of the jewellery is gold. Write the ratio of gold jewellery to silver jewellery.
- 13) At a concert the number of adults to children is in the ratio 5 : 2. The children are all either under 10 or over 10. The ratio of children under 10 to children over 10 is 3 : 4. What fraction of all the people at the concert are children under 10?
- 14) On a coach the ratio of teachers to students is 1 : 12. All the students study either science or history. The ratio of science students to history students is 5 : 7. What fraction of all the people on the coach are history students? Give your answer in simplest form.
- 15) In a park the ratio of adults to children is 4 : 1. The children are all either playing football or playing basketball. The ratio of football players to basketball players is 2 : 3. What percentage of all the people in the park are basketball players?
- 16) In a university the ratio of national to international students is 7 : 3. 40% of the international students are studying engineering. What fraction of all the students in the university are international engineering students? Give your answer in simplest form.

Task 2

- 17) Given that $a : b = 2 : 3$ and $b : c = 3 : 4$, write the ratio $a : b : c$.
- 18) Given that $p : q = 6 : 7$ and $q : r = 5 : 9$, write the ratio $p : q : r$.
- 19) Given that $a : b = 3 : 5$ and $b : c = 2 : 7$, write the ratio $a : b : c$.
- 20) Given that $x : y = 4 : 7$ and $y : z = 3 : 8$, write the ratio $x : y : z$.
- 21) Given that $m : n = 1 : 6$ and $m : p = 3 : 10$, write the ratio $n : p$. Give your answer in simplest form.
- 22) The ratio of lions to tigers is 7 : 4. The ratio of bears to lions is 5 : 2. Find the ratio of tigers to bears.

23) Amir, Ben and Corey share £212. The ratio of Amir's share to Ben's share is 5 : 3. The ratio of Ben's share to Corey's share is 4 : 7. How much does Corey receive?

24) Given that $m : p = 2 : 9$ and $n : p = 5 : 6$, write the ratio $m : n : p$.

25) A survey is taken about vehicles in a car park. The results are expressed in the following ratios, as the numbers of:

$$\text{Cars : Motorbikes} = 5 : 3$$

$$\text{Cars : Vans} = 10 : 1$$

If there were 187 vehicles recorded, how many vans were recorded?

Task 3

26) In a fruit basket, there are apples, bananas and oranges. The ratio of apples to fruit that are not apples is 3 : 7. The ratio of bananas to fruit that are not bananas is 2 : 5. Work out the ratio of apples : bananas : oranges.

27) A customer feedback survey was given. Each review was positive, neutral or negative. The ratio of positive reviews to not positive reviews was 3 : 2. The ratio of negative reviews to not negative reviews was 2 : 7. Given there were fewer than 100 surveys given, work out the highest number of respondents that gave a negative review.

28) The points A, B, C and D lie in order on a straight line, where

$$AB : BD = 4 : 7 \text{ and } AC : CD = 5 : 3.$$

Work out the ratio $AB : BC : CD$.

29) The points A, B, C and D lie in order on a straight line, where

$$AB : BD = 2 : 9 \text{ and } AC : CD = 7 : 8.$$

Work out the ratio $AB : BC : CD$.

Task 4

30) Given that,

$$A : B = 7 : 2 \text{ and } C : D = 3 : 8,$$

$$A + B = C + D,$$

Work out the ratio $A : B : C : D$.

31) A charity collects a bag of coins. The ratio of the number of 50p coins to the number of 20p coins is 3 : 2. The ratio of the number of 20p coins to the number of 10p coins is 5 : 4. If the total value of all the coins is £103.00, work out how many 50p coins there are.