

Ratio 1

1. Simplify the following ratios:

a. $27 : 63$

b. $2.5 : 4.5$

c. $2.25 : 4.95$

d. $3\frac{1}{4} : 2\frac{6}{7}$

2. Write the following ratios in the form $1 : n$:

a. $10 : 7$

b. $8 : 13$

3. Write the following ratios in the form $n : 1$:

a. $7 : 2$

b. $11 : 3$

4. Write the following as ratios in their simplest forms:

a. 1 day to 3 hours

b. 95p to £3

c. 15kg to 900g

d. 9 hours to 1 week

5. Adam mixes 50ml of orange juice with 200ml of water. Write down the ratio of orange juice to water.

6. At a football match, there are 3000 men and 1800 women. Find the ratio of men to women.

7. In a nursery, there are 5 adults and 14 children. Write the ratio of children to adults in the form $n : 1$.

8. Beth is making a cake. The recipe says the ratio of sugar to flour should be $1 : 3$. Beth uses 300g of flour and 900g of sugar. Has Beth used the correct amount of sugar and flour?

9. The ratio of boys to girls attending a birthday party is $4 : 5$. If there are 35 girls, how many boys are in the class?

10. The ratio of boys to girls in a swimming pool is $5 : 7$. There are 8 more girls than boys. How many children were swimming?

11. In a class of 30 children, the ratio of boys to girls is $2 : 3$. What will be the ratio if 6 girls join the class?

12. Ellie wants to share her pocket money with her sister in the ratio $7 : 5$. Ellie receives £24 a month. How much does she give her sister?

13. There are 20 yellow counters in a bag, and some red counters. The ratio of yellow to red counters is $5 : 1$. I put some more red counters into the bag so that the new ratio of yellow to red counters is $2 : 1$. How many red counters did I put into the bag?

14. On an unfair coin, the ratio of getting heads to tails is $1 : 4$. What is the probability of getting heads?

15. Two positive numbers are in the ratio $2 : 5$. Their product is 640. What are the numbers?

Ratio 2

1. Simplify the following ratios:

a. $8 : 10 : 12$

b. $13 : 26 : 52$

c. $63 : 14 : 35$

d. $1.2 : 0.3 : 2.7$

2. Aidan, Bill and Clara share sweets in the ratio of their ages. Aidan is 12, Bill is 9 and Clara is

3. Write down the ratio of their ages in its simplest form.

3. 120 sweets are shared out into three piles in the ratio $3 : 4 : 1$. How many more sweets does the biggest pile have than the smallest pile?

4. The ratio of angles in a quadrilateral is $7 : 4 : 5 : 2$. What is the smallest angle in this quadrilateral?

5. An athletics club has junior (boys and girls) and adult members. The ratio of girls to boys to adults is $3 : 4 : 9$. There are 16 more adults than juniors at the club. How many members does the club have in total?

6. Divide £30 in the ratio $4 : 7 : 9$.

7. If $18 : x = x : 8$, find the value of x .

8. A shepherd has a flock of sheep and goats. There are 55% more sheep than goats in the flock. Find the ratio of goats to sheep.

9. The ratio of boys to girls at a party is $1 : 2$. Of the boys, a quarter brought a gift to the party, and none of the girls did. What fraction of attendees at the party brought gifts?

10. Determine the ratio $x : z$, given that:

a. $x : y = 1 : 2$ and $y : z = 3 : 4$

b. $x : y = 11 : 2$ and $y : z = 7 : 11$

11. A factory makes blue vans and white vans in the ratio $4 : 3$. Of the blue vans, the ratio of small vans to big vans is $3 : 5$. What fraction of the vans the factory makes are big blue vans?

12. At a holiday camp, the ratio of boys to girls is $3 : 4$ and the ratio of girls to adults is $5 : 7$. What is the ratio of children to adults at the camp?

13. On a school trip, the ratio of teachers to pupils is $1 : 15$, and the ratio of boys to girls is $7 : 5$. What percentage of the school trip are girls?

14. Anna and Bill share some money in the ratio $2 : 5$. Carl and Donna share twice as much money as Anna and Bill share in the ratio $3 : 1$. Find the ratio $A : B : C : D$, where A, B, C, D are the amounts of money Anna, Bill, Carl and Donna received.

15. Some shapes on a table are either black or white, and are either circles or squares. The ratio of circles to squares is $2 : 3$. Of the circles, the ratio of black to white shapes is $4 : 5$. Of the squares, the ratio of black to white is $5 : 2$.

a. What fraction of shapes are black?

b. Determine the ratio of black circles to white squares.

Proportion

1. A rail journey of 300 miles costs £84. How much would a 250 miles cost?
2. 40cm of silk costs £3. How much will 5m cost?
3. Marble tiles cost £10 per 40cm by 40cm tile.
 - a. How many tiles are needed to tile a 4m by 6m courtyard?
 - b. How much would this cost?
4. At £2.70 per journey I can take 20 journeys on my Oyster card before topping up. After an increase to £3 per journey, how many can I take before topping up?
5. It takes 6 window cleaners 80 hours to wash every window in The Shard. How long would it take 10 cleaners?
6. It takes 1 person 30 minutes to dig a hole big enough to plant a tree. How long does it take 3 people to dig 10 holes?
7. 6 cats can catch 6 rats in 1 hour.
 - a. How many rats can 1 cat catch in 30 minutes?
 - b. How many cats are needed to catch 30 rats in 10 minutes?
 - c. How long does it take 2 cats to catch 9 rats?
8. A recipe to bake cookies requires 0.1kg of butter and 150g of flour for 4 cookies. Fred goes shopping for butter and flour to bake 33 cookies. He is only strong enough to carry 1 kilogram per trip. How many trips does he need to make to the shop?
9. When filling a bath, it takes the cold water tap 10 minutes, and the hot water tap 15 minutes. How long does it take when using both taps?
10. In my stamp collection, three quarters are stamps from the UK. A quarter of my UK stamps are from England. What fraction of my total stamp collection are stamps from England?