

Ratio problems

Solve missing value ratio problems using multiplication and division



Challenge 1

- 1 Here are the statistics for the number of home supporters at five different football matches. The ratio of home supporters to away supporters is given for each match. Calculate the number of away supporters for each match.

Home supporters	48 000	72 000	55 000	63 000	39 000
Ratio of home : away supporters	8 : 1	6 : 1	10 : 1	9 : 2	13 : 2

- 2 Look at each pair of statements and decide if the second statement is true or false and explain why, or give the correct answer for any that are false.
- Grey paint is 1 part black paint to 4 parts white paint. In a 10 l tin of grey paint, there are 8 l of white paint.
 - The ratio of boys to girls in a class is 3 : 2. In a class of 30 children, there are 12 girls.
 - Sam spent £100 on clothes and CDs in the ratio 3 : 2. He spent £40 on clothes.

Challenge 2

- 1 Here are two strawberry smoothie recipes.
- Calculate the amount of each ingredient required for each recipe to serve 12.
 - Which smoothie has a higher ratio of strawberry to apple?
 - How many people can you serve one smoothie to if you have 24 oranges and 24 nectarines but unlimited quantities of the other fruits?

Strawberry and nectarine smoothie

Serves 4

- 12 strawberries
- 3 nectarines
- 4 apples



Strawberry and banana smoothie

Serves 3

- 16 strawberries
- 1 banana
- 1 orange
- 4 apples



2 Here is a recipe for Chocolate Fudge Brownies.

a Write the following ratios in their simplest form:

- i chocolate : butter
- ii chocolate : brown sugar
- iii chocolate : chocolate chips
- iv brown sugar : chocolate chips

b How many servings are there if you use:

- i 15 ml vanilla extract? ii a dozen eggs?
- iii 1 kg brown sugar? iv 60 g butter?

Chocolate Fudge Brownie

Serves 12

- 180 g chocolate
- 120 g butter
- 200 g brown sugar
- 6 ml vanilla extract
- 2 eggs
- 180 g plain flour
- 100 g chocolate chips

3 Look at each pair of statements and decide if the second statement is true or false. Explain why, or give the correct answer for any that are false.

- a Grey paint is 1 part black paint to 4 parts white paint. In a 2 l tin of paint, there is 1.6 l of white paint.
- b The ratio of boys to girls in a class is 4 : 5. In a class of 27 children, there are 15 girls.
- c 200 kg of sand is divided into piles in the ratio 2 : 3. The smaller pile is 80 kg.
- d The approximate ratio of time asleep : time awake for a newborn baby is 2 : 1. A baby is awake for 56 hours in a week.

Look at each pair of statements and decide if the second statement is true or false.

- a Purple paint is 4 parts blue paint to 3 parts red paint. In a 3.5 l tin of paint, there is 1.5 l of red paint.
- b The ratio of boys to girls in a class is 7 : 8. In a class of 30 children, there are 16 girls.
- c Three Year 6 classes collected money for charity. The money they raised was in the ratio 7 : 6 : 5. Two of the classes raised £126 and £110.
- d 260 kg of sand is divided into piles in the ratio 6 : 7. The smaller pile is 120 kg.

