MATHEMATICS · GRADES 7-9

Ratios in word problems

Difficulty level: Intermediate

Mathematics: Grades 7-9

This document was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

Overview of the concept

This is how you scale a recipe up for a crowd, mix paint to the right colour, or split prize money fairly between two teams. A recipe for four that has to feed twelve needs every ingredient multiplied by the same amount, and a paint mix that is three parts blue to one part white has to keep that balance at any size. A prize split two to one between two teams has to follow the same ratio, or one team gets shortchanged. Ratios are what keep the proportions right when the size changes.



Rule

In a ratio, multiply or divide both parts by the same number and the ratio stays the same.

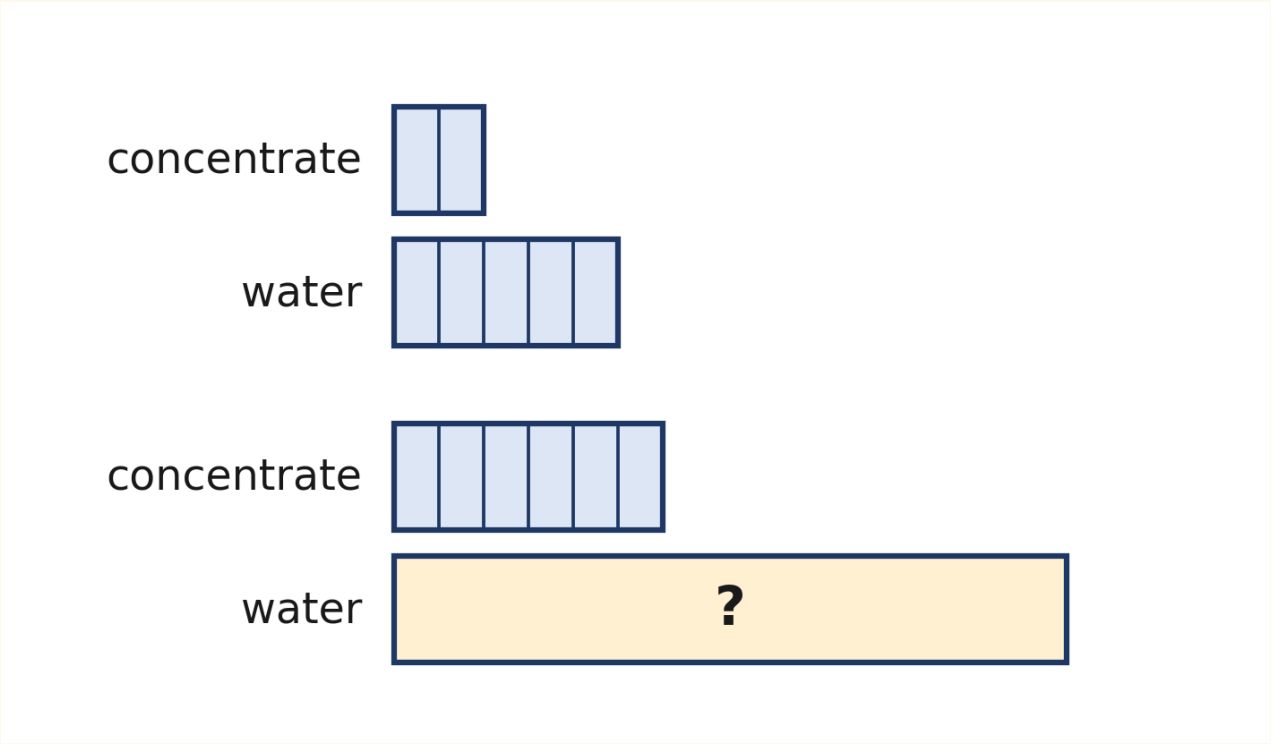
To find a missing part, work out what one part was multiplied by, then multiply the other part by the same number.

© 2026 Brett Robbins. All Rights Reserved.

Worked examples

EXAMPLE 1

Q A juice mix uses 2 parts concentrate to 5 parts water. How much water is needed for 6 parts concentrate?



SOLUTION

Picture it

$\frac{2}{5}$

Write the ratio: concentrate to water is 2:5.

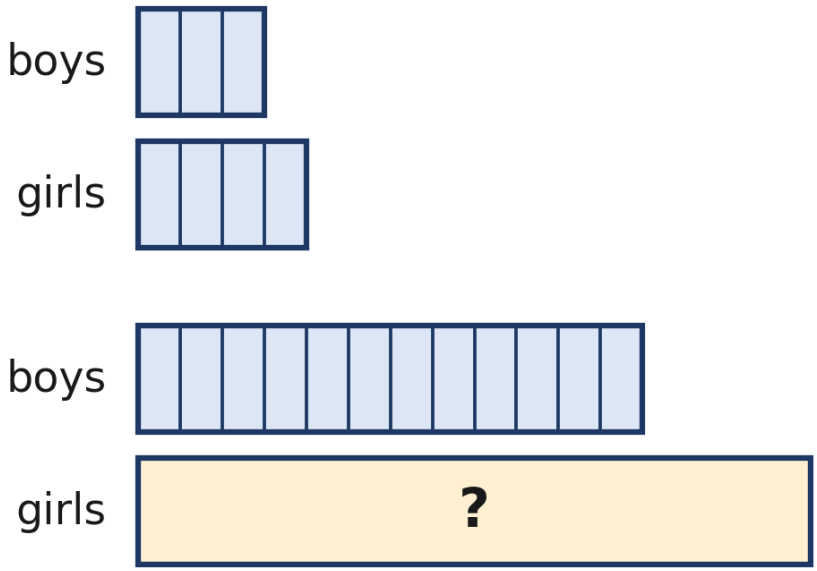
Concentrate: $2 \times 3 = 6$

Multiply water by 3 as well: $5 \times 3 = 15$ parts water.

© 2026 Brett Robbins. All Rights Reserved.

EXAMPLE 2

Q A class has boys to girls in the ratio 3:4. If there are 12 boys, how many girls are there?



SOLUTION

Picture it

$$\frac{3}{4}$$

Write the ratio: boys to girls is 3:4.

Boys: $3 \times 4 = 12$

Multiply girls by 4 as well: $4 \times 4 = 16$ girls.

© 2026 Brett Robbins. All Rights Reserved.

Practice questions

1. A paint mix is 1 part red to 3 parts white. How much white is needed for 5 parts red?

Understand It with Pulse | Flag a mistake

2. A recipe uses 2 cups sugar for every 3 cups flour. If there are 8 cups of sugar, how many cups of sugar and flour are there in total?

Understand It with Pulse | Flag a mistake

3. Boys to girls is 2:3. There are 10 boys. How many girls?

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

4 **Red to blue beads is 1:4. There are 20 blue beads. How many red beads?**

Understand It with Pulse | Flag a mistake

5 **A team wins to loses in the ratio 5:2. With 10 wins, how many losses?**

Understand It with Pulse | Flag a mistake

6 **A mix is 3 parts sand to 2 parts cement. With 9 parts sand, how much cement?**

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

7 Cats to dogs is 4:1. There are 20 animals in total. How many are cats?

Understand It with Pulse | Flag a mistake

8 A ratio is 2:7. The first part is 6. What is the second part?

Understand It with Pulse | Flag a mistake

9 A ratio is 5:3. The second part is 12. What is the first part?

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

10 **Juice to water is 1:5. With 4 litres of juice, how much water?**

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

ANSWER KEY

1. 15 parts

2. 20 cups

3. 15 girls

4. 5 beads

5. 4 losses

6. 6 parts

7. 16 cats

8. 21

9. 20

10. 20 litres

© 2026 Brett Robbins. All Rights Reserved.