

The difference stays the same.

Six original questions.

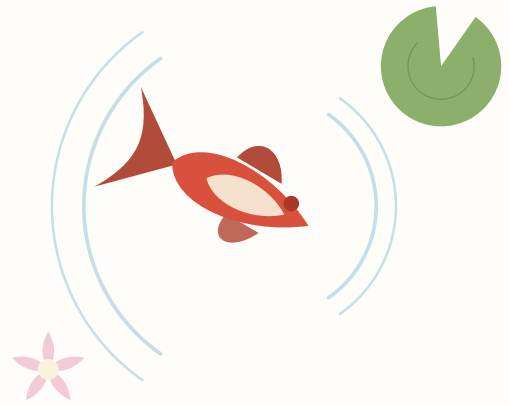
Room to think. Every answer included.

When does this method fit?

Look for the same amount being added to both quantities, or the same amount being removed from both.

The difference stays the same, even when the ratio changes. Ages work this way too: both people grow older by the same number of years.

This does not mean every before-and-after question uses this method. Read what changes.



Session 1 · Questions 1-3

Begin with ages, crates and clubs.

Session 2 · Questions 4-6

Return to baskets, tins and boxes.

The two sessions are optional. Work at a suitable pace, show your steps and check the worked answers afterwards. This is practice, not a timed test or a readiness score.

Need an explanation? The matching lesson includes a public film and sample question:

<https://mathweave.com/primary-6-math/ratio/the-difference-stays-the-same/>

Name (optional): _____

01

SESSION 1 · QUESTION 1

Growing older

A father is 4 times as old as his son. In 12 years' time, he will be twice as old as his son. How old is the son now?

Working

Answer: _____ years old

02

SESSION 1 · QUESTION 2

Mangosteens in crates

There were 180 mangosteens in Crate A and 108 mangosteens in Crate B. The same number of mangosteens was sold from each crate. The number left in Crate A to the number left in Crate B was then 5 : 2. How many mangosteens were sold from each crate?

Working

Answer: _____ mangosteens

03

SESSION 1 · QUESTION 3

Two school clubs

The number of members in the Chess Club to the number in the Robotics Club was in the ratio 5 : 2. After 36 more pupils joined each club, the ratio became 3 : 2. How many members did the Robotics Club have at first?

Working

Answer: _____ members

04

SESSION 2 · QUESTION 4

Rambutans in baskets

Basket A held 96 rambutans and Basket B held 42 rambutans. The same number of rambutans was added to each basket. The number in Basket A to the number in Basket B then became 5 : 3. How many rambutans were added to each basket?

Working

Answer: _____ rambutans

05

SESSION 2 · QUESTION 5

Buttons in tins

The number of buttons in Tin A to the number in Tin B was in the ratio 9 : 5. After 21 buttons were taken out of each tin, the ratio became 3 : 1. How many buttons were in Tin B at first?

Working

Answer: _____ buttons

06

SESSION 2 · QUESTION 6

Name tags in boxes

There were 156 name tags in Box A and 96 name tags in Box B. The same number of name tags was taken from each box. The number left in Box A to the number left in Box B was then 7 : 2. How many name tags were left in Box A?

Working

Answer: _____ name tags

Worked answers

01 · Growing older

Use units for the ages now. Both ages increase by the same number of years, so the difference stays the same.

Son now = 1 unit

Father now = 4 units

Difference in ages = $4 - 1 = 3$ units

Father : son in 12 years = $2 : 1$

Difference then = $2 - 1 = 1$ later part

1 later part = 3 units

Son in 12 years = 3 units

Increase in son's age = $3 - 1 = 2$ units

2 units = 12 years

1 unit = $12 \div 2 = 6$ years

Son now = 6 years old

Check

Father now = $4 \times 6 = 24$ years old

Father in 12 years = $24 + 12 = 36$ years old

Son in 12 years = $6 + 12 = 18$ years old

$36 \div 18 = 2$

Answer: 6 years old

02 · Mangosteens in crates

Selling the same number from each crate leaves the difference unchanged. Use the ratio after the sale.

Difference at first = $180 - 108 = 72$ mangosteens

Difference after the sale = 72 mangosteens

Difference after the sale = $5 - 2 = 3$ units

3 units = 72 mangosteens

1 unit = $72 \div 3 = 24$ mangosteens

Left in Crate B = $2 \times 24 = 48$ mangosteens

Sold from each crate = $108 - 48 = 60$ mangosteens

Answer: 60 mangosteens

Worked answers

03 · Two school clubs

Use units for the numbers of members at first. Equal additions leave the difference unchanged. A later part is not the same size as a starting unit.

Chess Club at first = 5 units

Robotics Club at first = 2 units

Difference at first = $5 - 2 = 3$ units

Difference later = $3 - 2 = 1$ later part

1 later part = 3 units

Robotics Club later = $2 \times 3 = 6$ units

Increase in Robotics Club = $6 - 2 = 4$ units

4 units = 36 members

1 unit = $36 \div 4 = 9$ members

Robotics Club at first = $2 \times 9 = 18$ members

Answer: 18 members

04 · Rambutans in baskets

Adding the same number to each basket leaves the difference unchanged. Use the ratio after the addition.

Difference at first = $96 - 42 = 54$ rambutans

Difference after the addition = 54 rambutans

Difference after the addition = $5 - 3 = 2$ units

2 units = 54 rambutans

1 unit = $54 \div 2 = 27$ rambutans

Basket B afterwards = $3 \times 27 = 81$ rambutans

Added to each basket = $81 - 42 = 39$ rambutans

Answer: 39 rambutans

Worked answers

05 · Buttons in tins

Use units for the numbers of buttons at first. Equal removals leave the difference unchanged. Match the later parts to those starting units.

Tin A at first = 9 units

Tin B at first = 5 units

Difference at first = $9 - 5 = 4$ units

Difference later = $3 - 1 = 2$ later parts

1 later part = $4 \div 2 = 2$ units

Tin B later = $1 \times 2 = 2$ units

Decrease in Tin B = $5 - 2 = 3$ units

3 units = 21 buttons

1 unit = $21 \div 3 = 7$ buttons

Tin B at first = $5 \times 7 = 35$ buttons

Answer: 35 buttons

06 · Name tags in boxes

Removing the same number from each box leaves the difference unchanged. The question asks what is left in Box A, not how many were removed.

Difference at first = $156 - 96 = 60$ name tags

Difference after the removal = 60 name tags

Difference after the removal = $7 - 2 = 5$ units

5 units = 60 name tags

1 unit = $60 \div 5 = 12$ name tags

Left in Box A = $7 \times 12 = 84$ name tags

Answer: 84 name tags