

2. Unit Ratio

Mathematical Definition: What is a Unit Ratio?

A ratio $a:b$ can be scaled up or down — **multiplying or dividing both terms by the same number keeps the ratio unchanged.**

$$a : b = (a \times c) : (b \times c) = (a \div c) : (b \div c)$$

When the second term is reduced to **1**, the first term becomes the **unit ratio**.

$$a : b = (a \div b) : 1 = a \div b \text{ (per 1 unit)}$$

a)

3 apples cost 6 yuan. How much does each apple cost?

Ratio = 6 yuan : 3 apples

$$\blacktriangledown \div 3$$

Unit Ratio = 2 yuan per apple

b)

4 books cost 20 yuan. How much does each book cost?

Ratio = 20 yuan : 4 books

$$\blacktriangledown \div 4$$

Unit Ratio = _____ yuan per book

2. Unit Ratio

c)

5 kg of rice costs 25 yuan. How much per kilogram?

Ratio = 25 yuan : 5 kg

▼ ÷ 5

Unit Ratio = _____ yuan/kg

d)

A car travels 120 km in 2 hours. What is its speed?

Ratio = 120 km : 2 hours

▼ ÷ 2

Unit Ratio = _____ km/h

e)

6 cartons of milk cost 18 yuan. How much per carton?

Unit Ratio = _____ yuan per carton

f)

Xiaoming runs 600 meters in 3 minutes. How many meters per minute?

Speed = _____ m/min

At this speed, how far can he run in 5 minutes?

Distance = _____ m