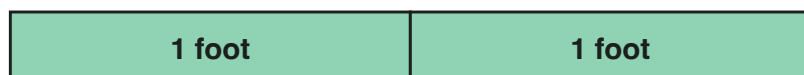


Unit Conversions: How It Works

The amount stays the same. Only the unit and the number change.

1. Same length, two ways to say it



Both bars are the same length. Only the unit changed. When the unit is **small**, you need **more** of them. When the unit is **big**, you need **fewer**.

2 feet

A foot is big. You need only 2.

24 inches

An inch is small. You need 24.

Big unit to small unit

There will be more, so **multiply**.

Small unit to big unit

There will be fewer, so **divide**.

2. The steps

Big to small: multiply 5 feet = ? inches

Step 1. Find the fact. 1 foot = 12 inches.

Step 2. Bigger or smaller? An inch is smaller than a foot, so there will be **more** inches.

Step 3. More means multiply. $5 \times 12 = 60$.

Step 4. Check. 60 is more than 5. That makes sense.

So 5 feet = 60 inches

Small to big: divide 20 quarts = ? gallons

Step 1. Find the fact. 1 gallon = 4 quarts.

Step 2. Bigger or smaller? A gallon is bigger than a quart, so there will be **fewer** gallons.

Step 3. Fewer means divide. $20 \div 4 = 5$.

Step 4. Check. 5 is fewer than 20. That makes sense.

So 20 quarts = 5 gallons

3. A table shows the pattern

feet	inches
1	12
2	24
3	36
4	48

Each row is the number of feet times 12.

One more foot is 12 more inches.

4. A measurement with two units

3 feet 4 inches = ? inches

Step 1. Change the feet. $3 \times 12 = 36$ inches.

Step 2. Add the inches you already have. $36 + 4 = 40$.

So 3 feet 4 inches = 40 inches

Watch out

Do **not** divide when you should multiply. Before you write an answer, ask: **should there be more or fewer?**

3 feet is not $3 \div 12$ inches. Inches are smaller, so there must be more than 3 of them. $3 \times 12 = 36$ inches.

Metric is always 10, 100 or 1,000

1 centimeter = 10 millimeters

1 meter = 100 centimeters

1 kilometer = 1,000 meters

1 kilogram = 1,000 grams

1 liter = 1,000 milliliters