

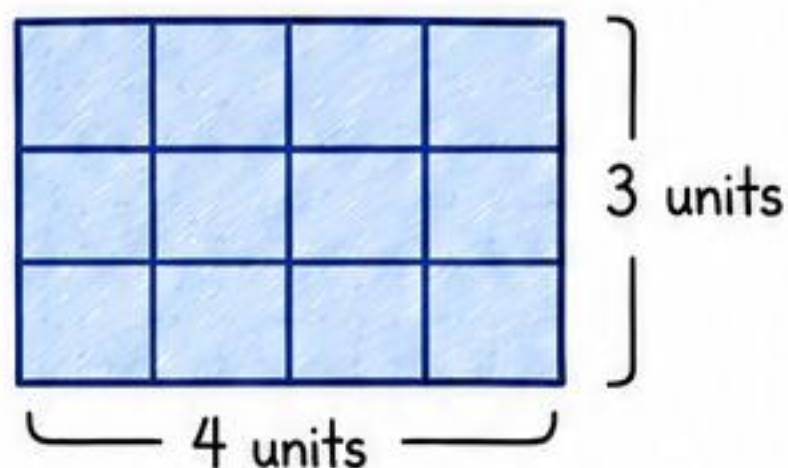
AREA and PERIMETER

Two important ways to measure the space of a shape!

AREA

The area is the amount of space **INSIDE** a shape.

We measure area in square units.



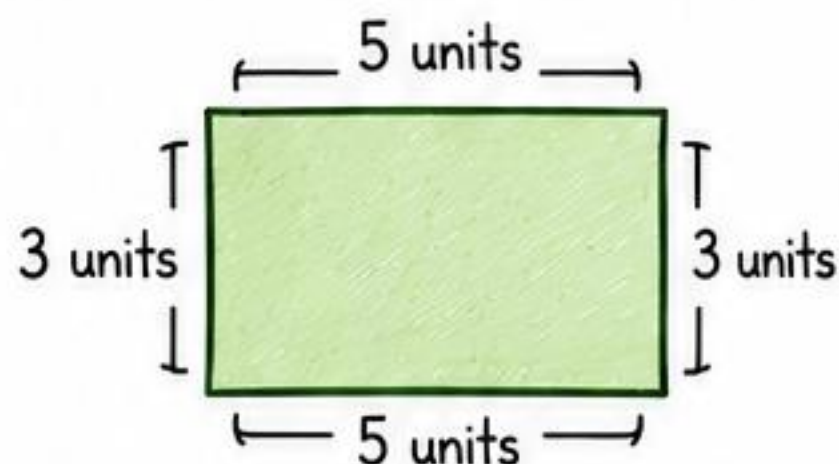
Area = length $\times$ width

$$A = l \times w$$

$$\text{Area} = 4 \times 3 = 12 \text{ square units}$$

PERIMETER

The perimeter is the distance **around** the **OUTSIDE** of a shape.



We measure perimeter in units.

Perimeter = add all side lengths

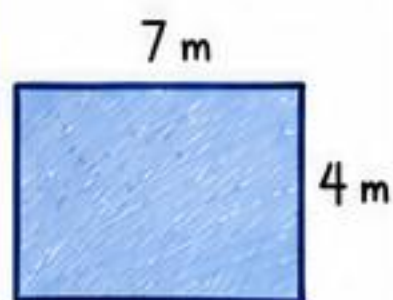
$$P = 5 + 3 + 5 + 3$$

$$\text{Perimeter} = 16 \text{ units}$$

EXAMPLES

FIND THE AREA

Rectangle

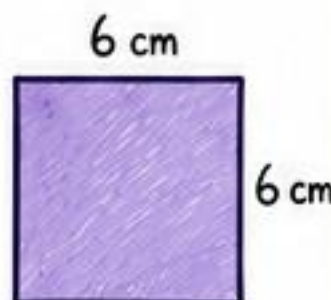


$$A = l \times w$$

$$A = 7 \times 4$$

$$A = 28 \text{ m}^2$$

Square

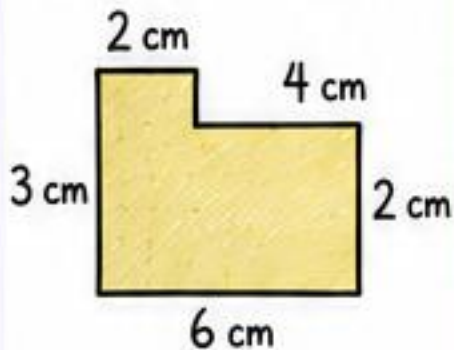


$$A = s \times s$$

$$A = 6 \times 6$$

$$A = 36 \text{ cm}^2$$

L-Shaped Figure



Break it into two rectangles!

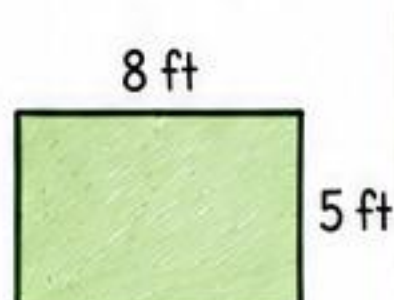
$$A = (2 \times 3) + (4 \times 2)$$

$$A = 6 + 8$$

$$A = 14 \text{ cm}^2$$

FIND THE PERIMETER

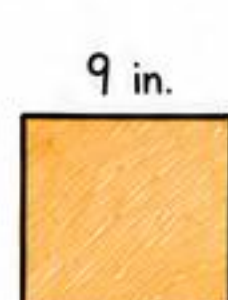
Rectangle



$$P = 8 + 5 + 8 + 5$$

$$P = 26 \text{ ft}$$

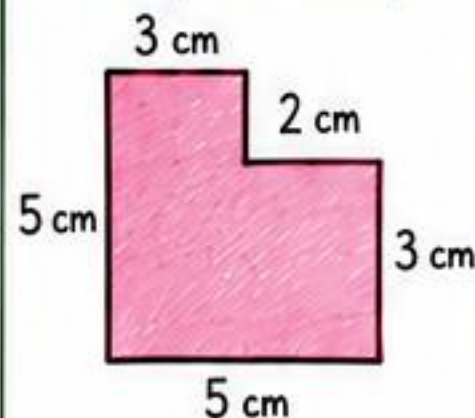
Square



$$P = 9 + 9 + 9 + 9$$

$$P = 36 \text{ in.}$$

Irregular Shape



$$P = 3 + 2 + 3 + 5 + 5 + 5$$

$$P = 23 \text{ cm}$$

TIPS TO REMEMBER

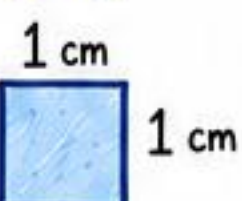
- ★ Area tells how much space is inside.
- ★ Perimeter tells how far around the outside.
- ★ Always include the correct unit in your answer!
- ★ Make sure to add all sides when finding perimeter.
- ★ Break complex shapes into smaller rectangles to find area.



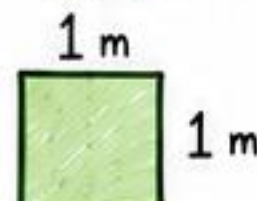
SQUARE UNITS EXAMPLES

The unit is squared (²) because you are measuring space!

square cm
(cm²)



square m
(m²)



square ft
(ft²)



Practice makes **PROGRESS!**

Measure carefully. • Show your work. • Check your units!

DECIMAL BASICS

Decimals are another way to show parts of a whole or parts of a group.

WHAT IS A DECIMAL?

A decimal is a number that uses a decimal point to separate whole numbers and parts of a whole.

23.47
 ↑ whole number ↓ decimal part

≧ PLACE VALUE ≦

Tens	Ones	.	Tenths	Hundredths
10	1	.	0.1	0.01
2	3	.	4	7

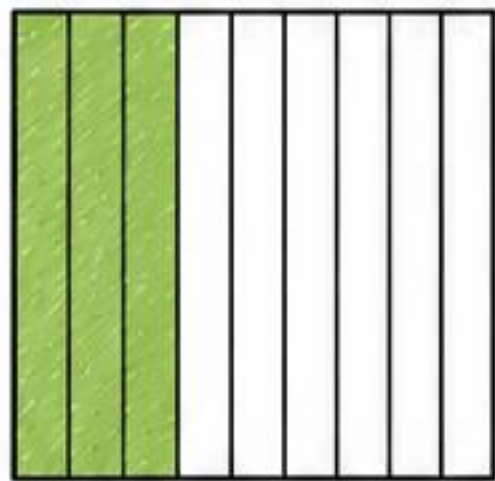
WHOLE NUMBER

DECIMAL PART

↑
This is the decimal point.

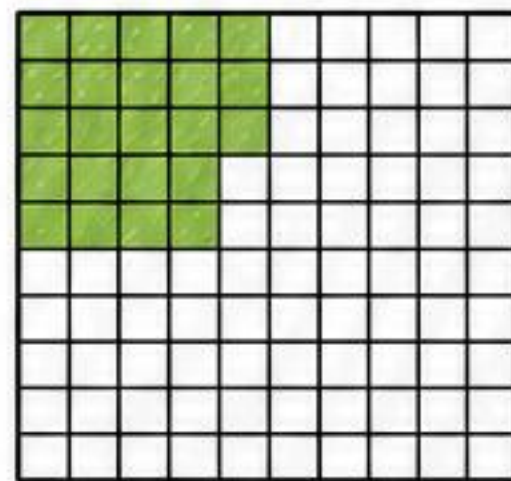
DECIMAL MODELS

0.3 (three tenths)



3 out of 10 parts are shaded.

0.27 (twenty-seven hundredths)



27 out of 100 parts are shaded.

READING DECIMALS

3.4 = three and four tenths
12.67 = twelve and sixty-seven hundredths
0.08 = eight hundredths
45.6 = forty-five and six tenths

Read the whole number, then the word "and", then the decimal part.

COMPARING DECIMALS

1. Compare the whole numbers.
The greater whole number is the greater decimal.

8.15 > **7.98**
 8 > 7

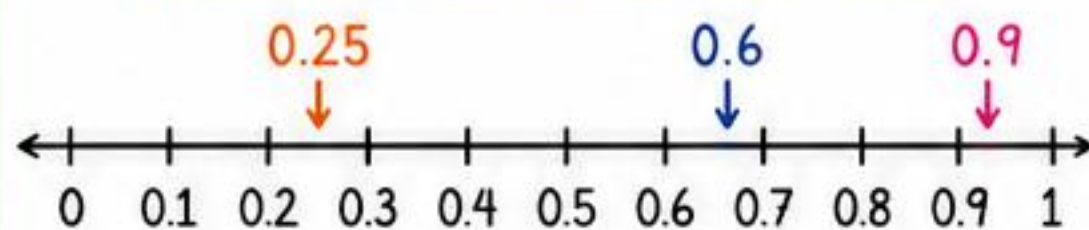
2. If the whole numbers are the same, compare the tenths.

4.37 > **4.29**
 3 tenths > 2 tenths

3. If the tenths are the same, compare the hundredths.

6.58 > **6.52**
 8 hundredths > 2 hundredths

DECIMALS ON A NUMBER LINE



Decimals help us be more precise!

WRITING DECIMALS

In standard form:

2 ones 3 tenths 5 hundredths
 ↓ ↓ ↓
 2 + 0.3 + 0.05
 = **2.35**

In expanded form:

2.35 = 2 + 0.3 + 0.05
 ↑ ↓ ↓
 2 ones 3 tenths 5 hundredths

PLACE VALUE CHART

Hundreds	Tens	Ones	.	Tenths	Hundredths	Thousandths
100	10	1	.	0.1	0.01	0.001

Example: **3** **4** **8** . **6** **7** **2**
 ↑ ↑ | ↑ ↑ ↑
 3 hundreds 4 tens 8 ones 6 tenths 7 hundredths 2 thousandths

TIPS TO REMEMBER

- ✓ The decimal point separates whole numbers and decimal parts.
- ✓ Tenths are to the right of the decimal point.
- ✓ Hundredths are to the right of the tenths.
- ✓ Line up the decimal points when comparing or adding/subtracting.



Understanding FRACTIONS

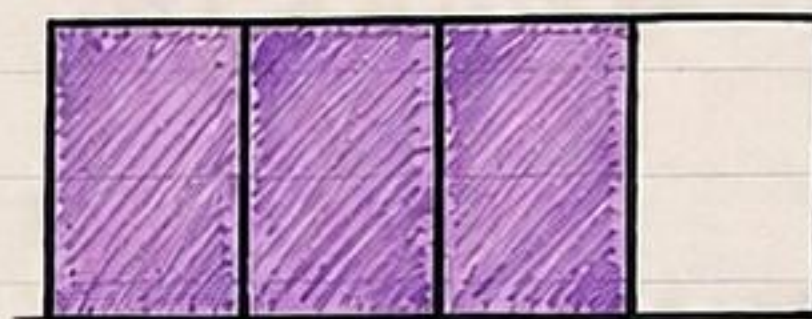
A fraction shows a **part** of a **whole** or a **part** of a **group**.

$\frac{3}{4}$

← **numerator**
How many parts we have.

← **denominator**
How many equal parts make a whole.

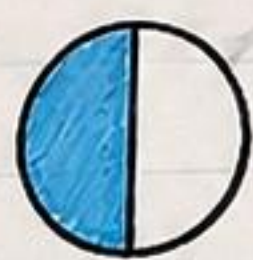
EXAMPLE:



$\frac{3}{4}$ Three-fourths of the shape is shaded.

EQUIVALENT FRACTIONS

Fractions that name the same value even though they have different numerators and denominators.

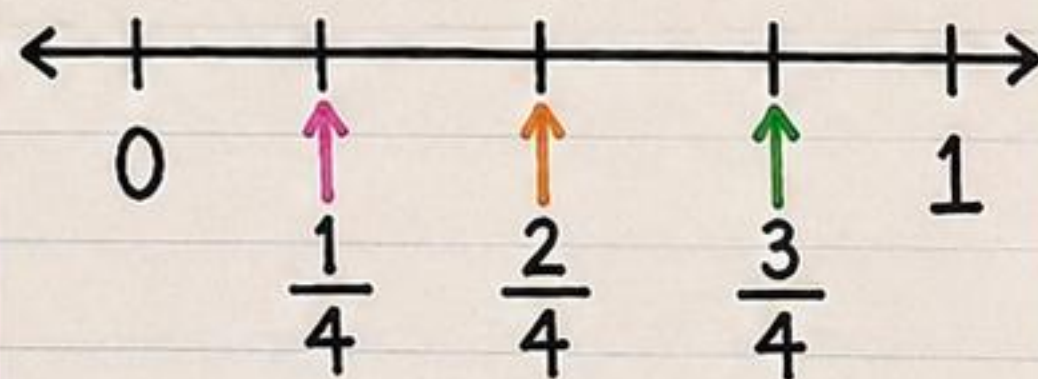
 $=$ 
 $\frac{1}{2} = \frac{2}{4}$

COMPARE FRACTIONS

Use the same denominator to compare.

$$\frac{1}{4} < \frac{3}{4}$$
$$\frac{2}{3} > \frac{1}{3}$$

FRACTIONS ON A NUMBER LINE



Simplify!

Make sure your fraction is in simplest form.

$$\frac{6}{8} = \frac{3}{4} \quad (\text{divide by } 2)$$

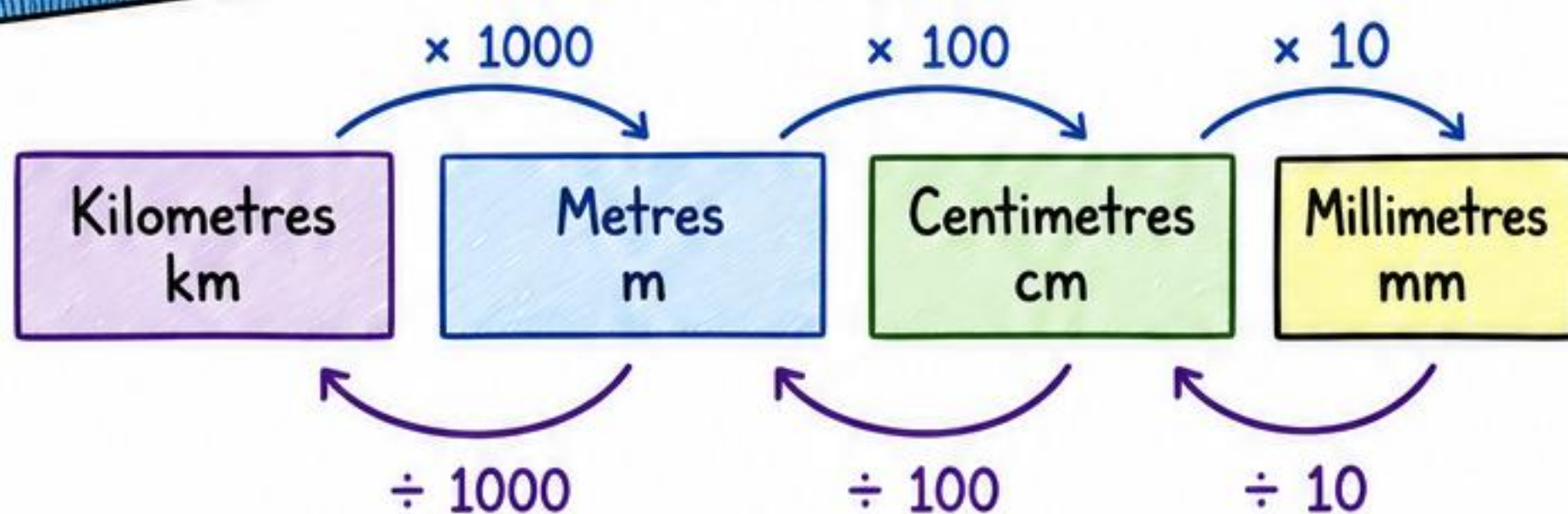
Simplest form means the numbers have no common factors except 1. ♥

MEASUREMENT CONVERSIONS

Converting measurements means changing to a different unit.



LENGTH



TIP:

Move the decimal point to match your conversion.

- Moving **RIGHT** (to a smaller unit) $\rightarrow$ multiply
- Moving **LEFT** (to a larger unit) $\rightarrow$ divide

EXAMPLES:

Make it bigger (to a larger unit)
 $\rightarrow$ move decimal **LEFT** and divide.

- $350 \text{ cm} = 3.5 \text{ m}$ $\leftarrow \div 100$
- $7,200 \text{ mm} = 7.2 \text{ m}$ $\leftarrow \div 1000$

Make it smaller (to a smaller unit)
 $\rightarrow$ move decimal **RIGHT** and multiply.

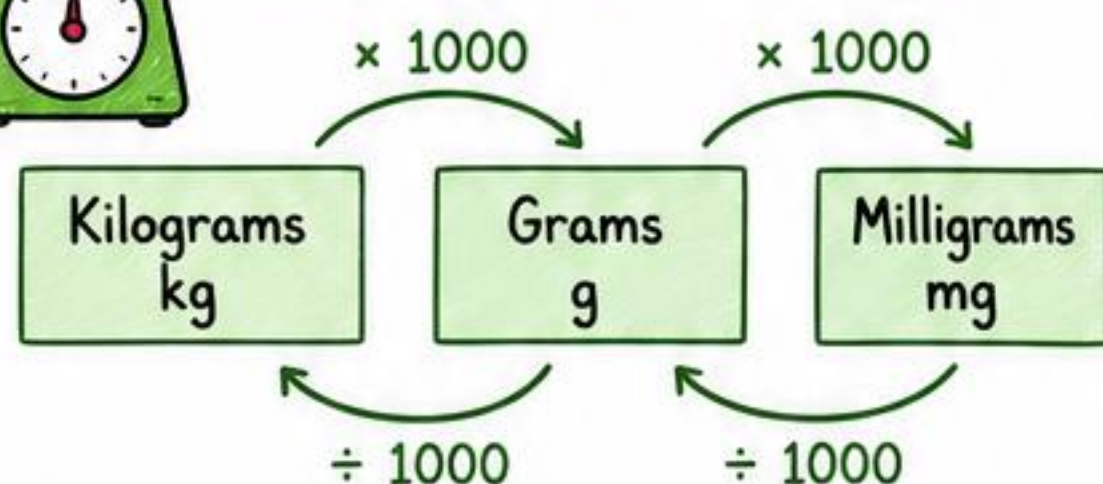
- $2.4 \text{ m} = 240 \text{ cm}$ $\rightarrow \times 100$
- $3.6 \text{ m} = 3,600 \text{ mm}$ $\rightarrow \times 1000$

Remember:

Always include the unit in your answer!



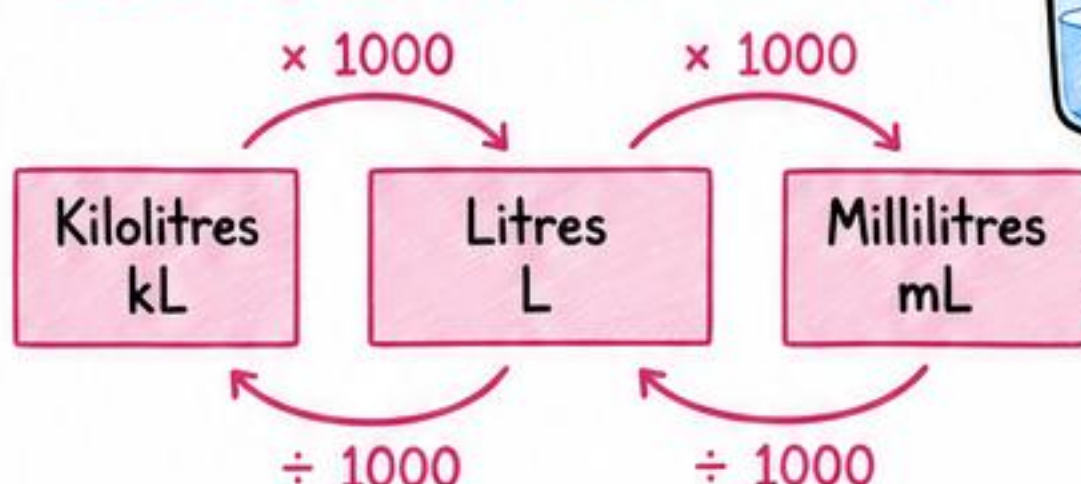
MASS (WEIGHT)



EXAMPLES:

- $2.5 \text{ kg} = 2,500 \text{ g}$ $\times 1000$
- $450 \text{ g} = 0.45 \text{ kg}$ $\div 1000$
- $3 \text{ g} = 3,000 \text{ mg}$ $\times 1000$

CAPACITY (VOLUME)



EXAMPLES:

- $3 \text{ L} = 3,000 \text{ mL}$ $\times 1000$
- $750 \text{ mL} = 0.75 \text{ L}$ $\div 1000$
- $2.5 \text{ kL} = 2,500 \text{ L}$ $\times 1000$

HANDY REMINDERS

Check your unit!



Make sure your answer makes sense.

Use a place value chart if it helps!

Th	H	T	O.	t	h
Thousands		Ones		tenths	hundredths

Practice makes perfect!



Estimate first!

This helps you check if your answer is reasonable.



MEASURING in the METRIC SYSTEM

The metric system is a **decimal** system based on powers of **10**. We move the decimal to convert between units.

THE METRIC LADDER

kilo- k 1000  kilometer kilogram	hecto- h 100  hectometer hectogram	deca- da 10  decimeter decagram	(base unit) meter gram liter	deci- d 0.1  decimeter decigram deciliter	centi- c 0.01  centimeter centigram centiliter	milli- m 0.001  millimeter milligram milliliter
---	---	--	---	---	--	---

Move **LEFT** to convert to a **LARGER** unit.
Divide by 10 for each step.

Move **RIGHT** to convert to a **SMALLER** unit.
Multiply by 10 for each step.

EXAMPLES

- ① Convert 3.5 km to m.
kilo → hecto → deca → meter
Move **RIGHT** 3 steps ($\times 10$ each step)

$$3.5 \text{ km} = 3,500 \text{ m}$$

- ② Convert 250 cm to m.
centi → milli
Move **LEFT** 2 steps ($\div 10$ each step)

$$250 \text{ cm} = 2.5 \text{ m}$$

COMMON LENGTH UNITS

- kilometer (km) = distance 
- meter (m) = length 
- centimeter (cm) = small length 
- millimeter (mm) = very small length •

COMMON MASS UNITS

- kilogram (kg) = heavier objects 
- gram (g) = lighter objects 
- milligram (mg) = very small mass •

TIP!

- ★ Start at the unit you know.
- ★ Count the steps.
- ★ Move the decimal the same number of steps. Fill in zeros if you need to!

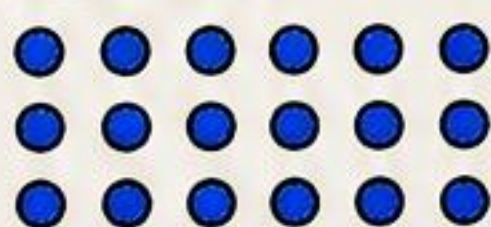
Example:

0.7 m to mm
m → dm → cm → mm
Move **RIGHT** 3 steps.
0.7 → 700
0.7 m = 700 mm

MULTIPLICATION STRATEGIES

There are many ways to solve a multiplication problem.
Pick the strategy that works best for you!

1. ARRAY

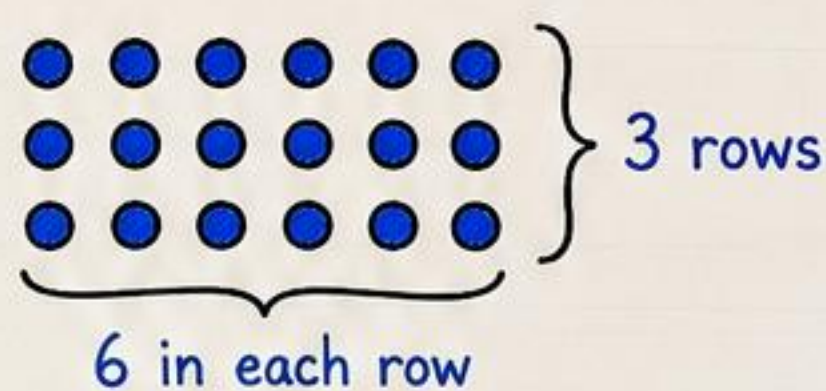


Make rows and columns.

- Arrange objects in rows and columns to find the total.

EXAMPLE

$$3 \times 6 = 18$$



2. REPEATED ADDITION

Add the same number over and over.

- Add the number the given number of times.

EXAMPLE

$$4 \times 5 = 20$$

$$\underbrace{5 + 5 + 5 + 5}_{4 \text{ groups of } 5} = 20$$

3. BREAK APART (PARTIAL PRODUCTS)

23

20 | 3

Break one factor into easier parts.

- Break apart one number and multiply each part.
- Then, add the products.

EXAMPLE

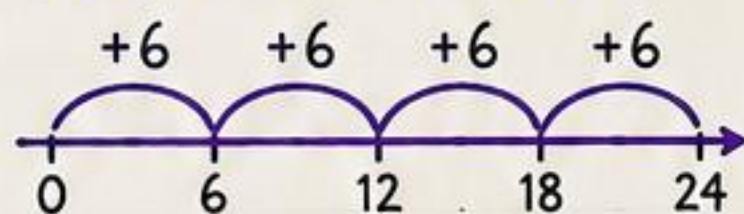
$$23 \times 4 = ?$$

$$(20 \times 4) + (3 \times 4)$$

$$80 + 12 = 92$$

$$\text{So, } 23 \times 4 = 92$$

4. NUMBER LINE

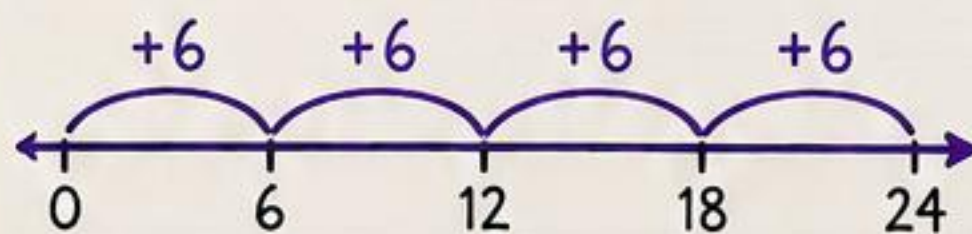


Make equal jumps on a number line.

- Make a number line.
- Add equal jumps to find the total.

EXAMPLE

$$4 \times 6 = 24$$



$$4 \text{ jumps of } 6 = 24$$

5. USE WHAT YOU KNOW!

I know $4 \times 5 = 20$

So, $4 \times 6 = ?$

Use facts you already know to help you.

- Think of a fact you know.
- Adjust to solve the new problem.

EXAMPLE

$$4 \times 6 = ?$$

I know $4 \times 5 = 20$

Add one more group of 4.

$$20 + 4 = 24$$

$$\text{So, } 4 \times 6 = 24$$

REMEMBER:

- ★ Choose the strategy that makes sense to you.
- ★ Check your answer to make sure it is reasonable.
- ★ Practice using different strategies!

PLACE VALUE

The value of a digit depends on its PLACE.

Our number system is based on groups of THREE.

MILLIONS			THOUSANDS			ONES		
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
1	2	3	4	5	6	7	8	9
Millions Period			Thousands Period			Ones Period		

EXAMPLE: 123,456,789

Read it: one hundred twenty-three million, four hundred fifty-six thousand, seven hundred eighty-nine.

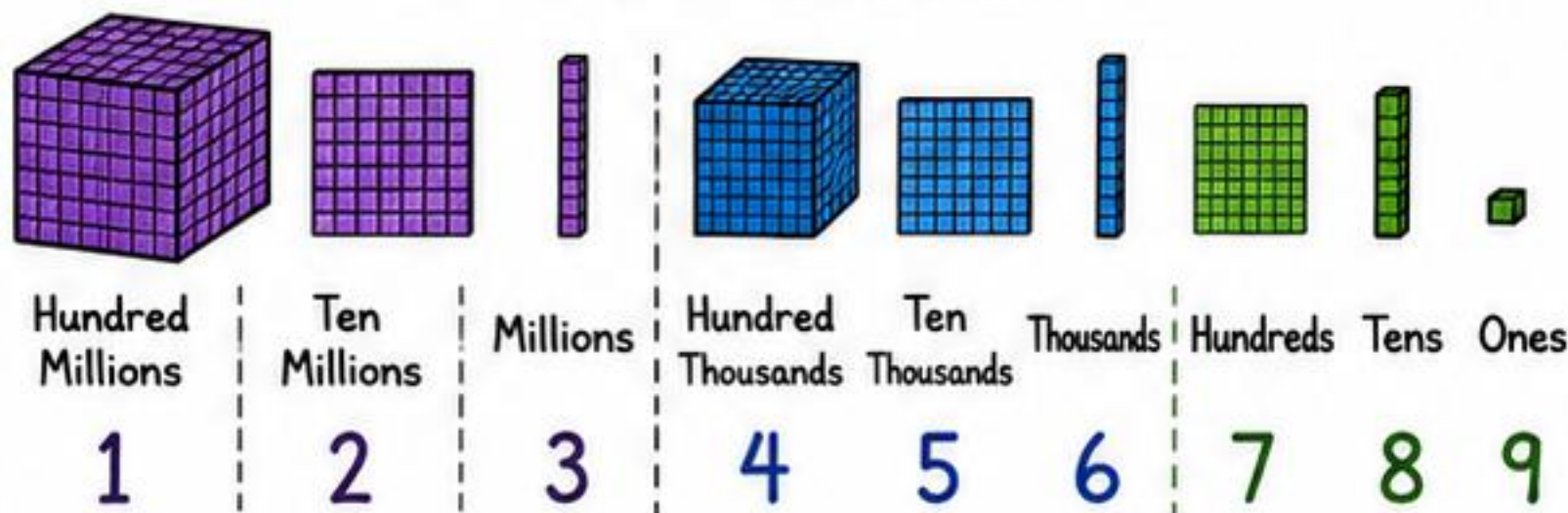
EXPANDED FORM

100,000,000 + 20,000,000 + 3,000,000 + 400,000 + 50,000 + 6,000 + 700 + 80 + 9

WORD FORM

one hundred twenty-three million, four hundred fifty-six thousand, seven hundred eighty-nine

WE CAN SHOW PLACE VALUE WITH BASE-TEN BLOCKS!



THE VALUE OF EACH DIGIT

1	in the hundred millions place	=	100,000,000
2	in the ten millions place	=	20,000,000
3	in the millions place	=	3,000,000
4	in the hundred thousands place	=	400,000
5	in the ten thousands place	=	50,000
6	in the thousands place	=	6,000
7	in the hundreds place	=	700
8	in the tens place	=	80
9	in the ones place	=	9



REMEMBER:

- ✓ A digit in a different place has a different value.
- ✓ When a digit moves one place to the left, its value becomes 10 times greater.
- ✓ When a digit moves one place to the right, its value becomes 10 times smaller.

PRACTICE!

Write these numbers in expanded form.

- 45,678 = _____
- 7,305,129 = _____
- 809,045 = _____



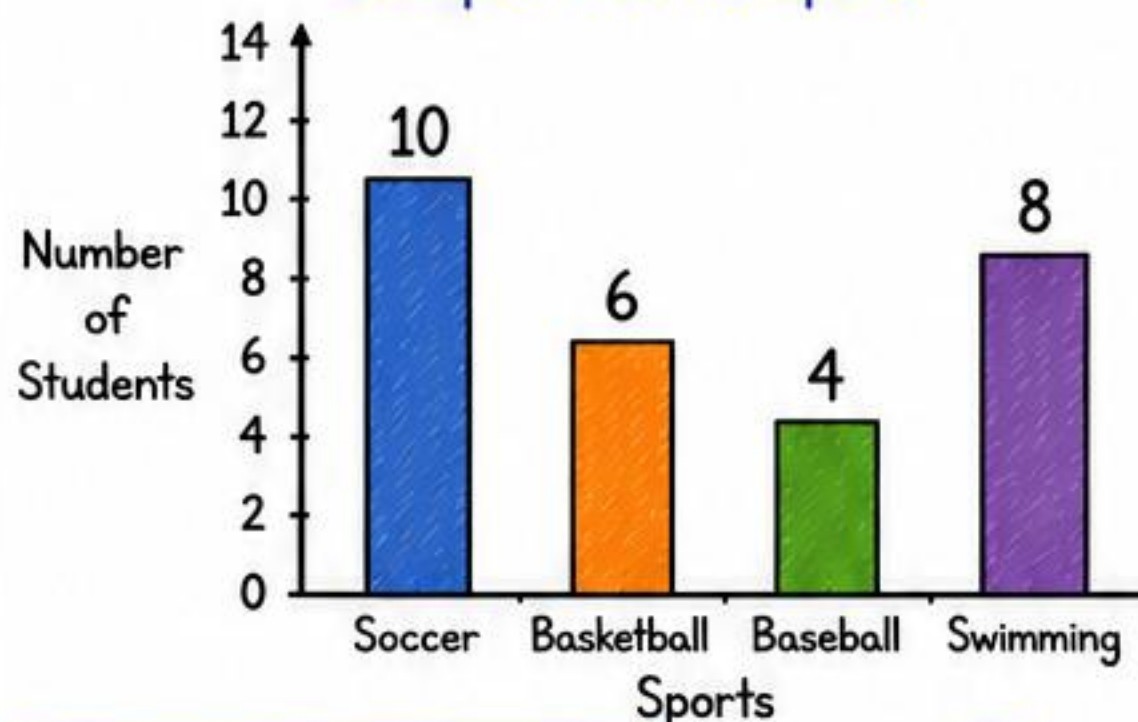
READING GRAPHS & TABLES

Graphs and tables show data or information in a way that helps us **understand** and **compare** things quickly.

READING GRAPHS

A graph uses **pictures, bars, or lines** to show information.

Example: Favorite Sports



How to read it:

- Look at the title to know what the graph is about.
- Read the labels on the axes.
- Use the scale (numbers) to find how much.
- Compare the bars to answer questions.

Think:

Which sport has the most?
Which has the least?



READING TABLES

A table uses **rows** and **columns** to organize information.

Example: Pets in Our Class

Pet	Number of Students	Tally Marks
Dog	11	I
Cat	7	II
Fish	5	
Hamster	3	

How to read it:

- Read the title to know what the table is about.
- The left column tells what is being counted.
- The middle column tells how many.
- The right column (tally marks) shows how many.

Think:

How many students have cats?
Which pet is the least?



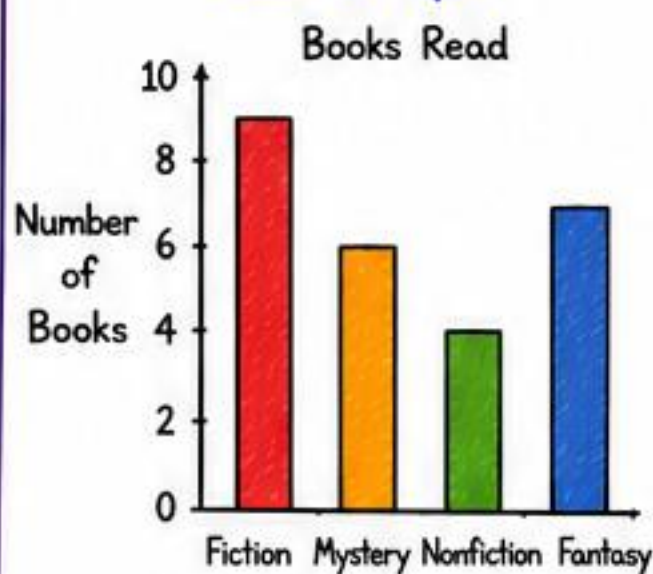
KEY VOCABULARY

- **Data:** facts or numbers collected.
- **Title:** tells what the graph or table is about.
- **Label:** tells what each part or row/column means.
- **Scale:** the numbers used to measure or count.
- **Compare:** to find how things are the same or different.



TYPES OF GRAPHS YOU MIGHT SEE

Bar Graph



- Compares different categories.
- Uses bars.

Picture Graph

Ice Cream Flavors

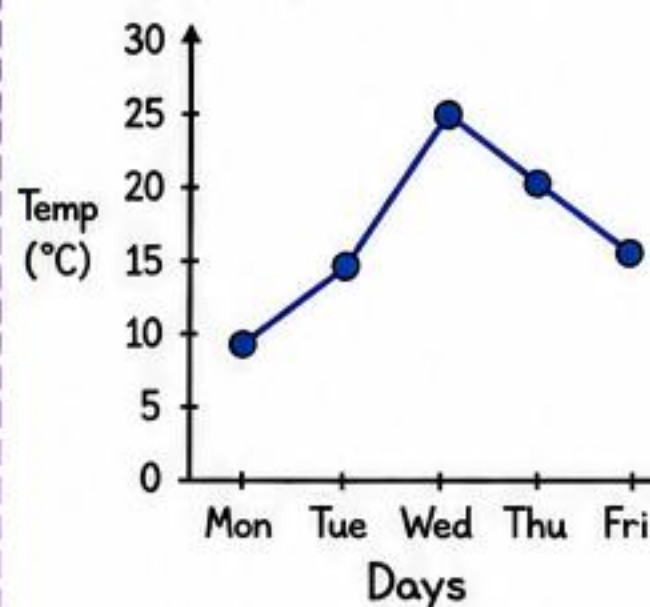
Chocolate	
Vanilla	
Strawberry	
Mint Chip	

Key: = 2 students

- Uses pictures or symbols to show data.
- Use the key to find how many.

Line Graph

Daily High Temperatures



- Shows changes over time.
- Uses points connected by lines.

QUESTIONS TO ASK

- ★ What is this graph/table about?
- ★ What do the labels tell me?
- ★ What is the data showing?
- ★ How many in each category?
- ★ Which has more? Which has less?
- ★ What can I conclude from this information?



TIPS FOR SUCCESS

- ✓ Read everything: title, labels, and numbers.
- ✓ Take your time and look carefully.
- ✓ Use the scale or key to help you.
- ✓ Compare and think about what the data means.
- ✓ Check your answer—does it make sense?



Good readers look closely at graphs and tables to understand the **story** the data tells!



ROUNDING NUMBERS

Rounding means changing a number to a friendly number that is close to the original number.

WHY ROUND?

- to estimate
- to check if an answer is reasonable
- to make math easier
- to work with friendly numbers



THE RULE

Look at the place value to the right of the place you are rounding to.

- 0, 1, 2, 3, 4 → round down (stay the same)
- 5, 6, 7, 8, 9 → round up (go up)

5 or more,
let it
soar!
4 or less,
let it
rest.

EXAMPLES

ROUND TO THE NEAREST TEN

478
↑ ↓
tens ones

Look at the ones: 8

8 is 5 or more,
so round up!

480

(478 ≈ 480)

ROUND TO THE NEAREST HUNDRED

1,367
↑ ↓
hundreds tens

Look at the tens: 6

6 is 5 or more,
so round up!

1,400

(1,367 ≈ 1,400)

ROUND TO THE NEAREST THOUSAND

5,832
↑ ↓
thousands hundreds

Look at the hundreds: 8

8 is 5 or more,
so round up!

6,000

(5,832 ≈ 6,000)

ROUND TO THE NEAREST TEN THOUSAND

47,615
↑ ↓
ten thousands thousands

Look at the thousands: 7

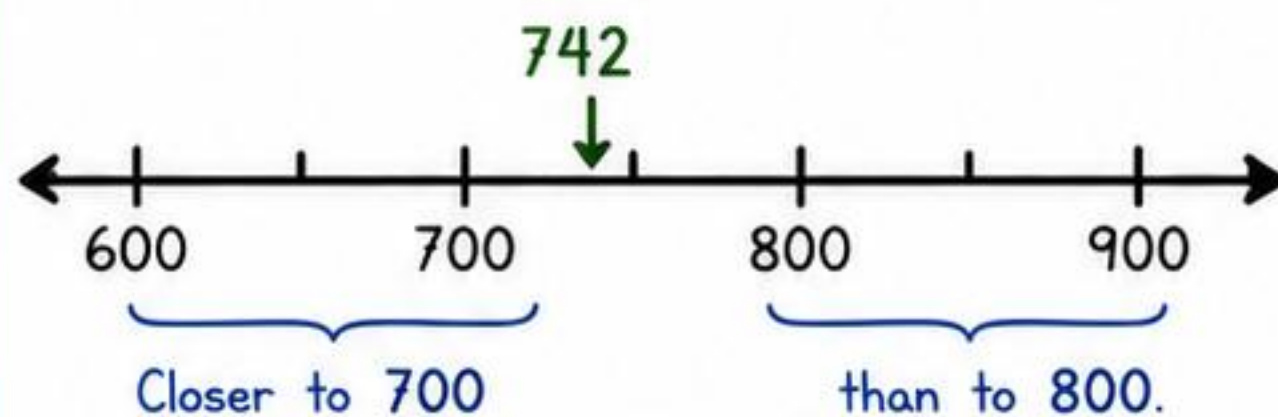
7 is 5 or more,
so round up!

50,000

(47,615 ≈ 50,000)

NUMBER LINE EXAMPLE

Round 742 to the nearest hundred.



742 ≈ 700

THINGS TO REMEMBER

- ★ Identify the place you are rounding to.
- ★ Look at the digit to the right.
- ★ Use the rule: 0–4 round down, 5–9 round up.
- ★ Change all the digits to the right to zero.

Practice
makes
progress!



★ Rounding helps us make smart estimates and solve problems with confidence! ★

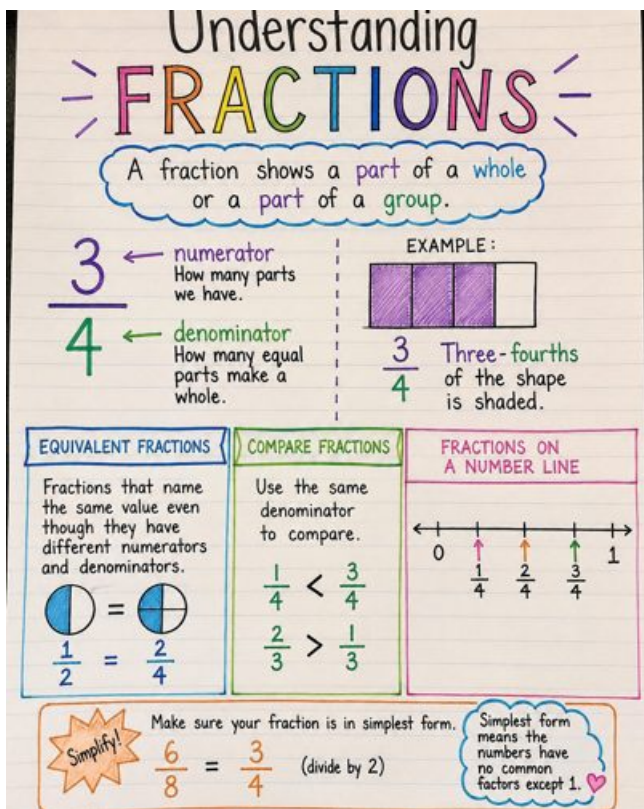


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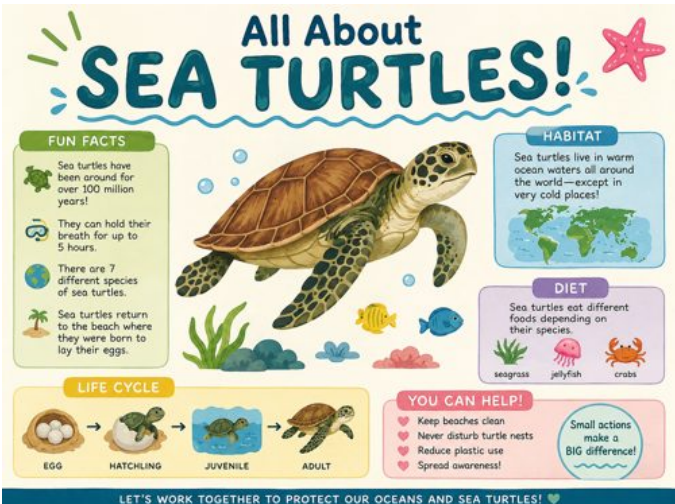
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