

New York NYS Math Test Grade 4 Math Step by Step

A Beginner Friendly Guide to Learning Math

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Grade 4 Math Step-by-Step



Every math problem can be broken into steps.

This book shows you exactly how to solve every type of Grade 4 math problem. Each topic is broken into clear, numbered steps with examples that walk you through the process from start to finish.



Read the Steps



Follow Along



Try It Yourself

“ When you learn the steps, you can solve any problem — even ones you’ve never seen before! **”**



🧭 How to Use This Book 🧭

Every topic follows the same road map. Here's what to expect.

🎯 Step Goal

Each topic tells you upfront what skill you're building. This helps you know where you're headed.

📖 Road Map

A visual overview of the steps you'll follow. Think of it as your problem-solving recipe.

☰ Major Steps

The numbered steps that show you exactly what to do. Each step has a clear action and an example.

🎬 Step Example

After the steps, a full worked example puts everything together so you can see the steps in action.



Owlbert's Tips

Shortcuts, memory tricks, and advice to make each step easier to remember.

🏠 Step Practice

Practice problems to try. Follow the steps you just learned!

✅ **Answers** to every practice problem are in the **Answer Key** at the back of the book!

How Every Topic Works

Every topic follows this flow. You'll get the hang of it fast!

 **Step Goal** — What you'll learn



 **Road Map** — Overview of all steps



 **Major Steps (1, 2, 3...)** — Do this, then this



 **Step Example** — See all steps in action



 **Step Practice** — Now you try!



 **Check Your Answers** — Answer Key at the back



Pro tip: When you hit a tricky problem, go back to the **Major Steps** and follow them one at a time. The steps work for every problem of that type!

X¹ Math Symbols You Should Know X¹

You'll see these symbols throughout this book!

Symbol	Name	What It Means	Example
+	Plus (Add)	Combine amounts together.	$3,456 + 1,234 = 4,690$
-	Minus (Subtract)	Find the difference.	$5,000 - 2,378 = 2,622$
×	Times (Multiply)	Repeated groups.	$43 \times 12 = 516$
÷	Divide	Split into equal groups.	$84 \div 7 = 12$
=	Equals	Both sides have the same value.	$\frac{2}{4} = \frac{1}{2}$
>	Greater Than	The left side is larger.	$\frac{3}{4} > \frac{1}{2}$
<	Less Than	The left side is smaller.	$0.25 < 0.5$
$\frac{a}{b}$	Fraction Bar	a parts out of b equal parts.	$\frac{3}{8} = 3 \text{ out of } 8$
.	Decimal Point	Separates whole from parts.	$3.75 = 3 \text{ and } \frac{75}{100}$
∠	Angle	Two rays sharing an endpoint.	$\angle ABC = 90^\circ$
	Parallel	Lines that never cross.	$\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$
⊥	Perpendicular	Lines that form a 90° angle.	$\overleftrightarrow{EF} \perp \overleftrightarrow{GH}$

 Key Math Words for Grade 4

- **Factor** — a number you multiply by
- **Product** — the answer when you multiply
- **Quotient** — the answer when you divide
- **Remainder** — what's left over after dividing
- **Prime** — divisible only by 1 and itself
- **Composite** — has more than two factors
- **Numerator** — top number of a fraction
- **Denominator** — bottom number of a fraction
- **Mixed Number** — whole part + fraction part
- **Decimal** — a number with a decimal point
- **Equivalent** — fractions with the same value
- **Perimeter** — distance around a shape
- **Area** — space inside a shape
- **Acute Angle** — less than 90°
- **Right Angle** — exactly 90°
- **Obtuse Angle** — greater than 90°



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CHAPTER

1

Multiply, Divide, and Patterns

★ *What's Inside* ★

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★ 1.1 Multiplication as a Comparison ★

What You'll Learn

- Understand what “times as many” means
- Write multiplication equations from comparison sentences

Words to Know

- ▶ **Times as many** — One group is multiplied to get the other. “3 times as many as 5” means 3×5 .
- ▶ **Multiplicative comparison** — Comparing two amounts by asking how many **times** bigger one is.
- ▶ **Equation** — A math sentence with an equal sign, like $3 \times 5 = 15$.

How to Solve “Times As Many” Problems

- 1 Read the problem. Find the two amounts being compared.
- 2 Find the words “times as many” or “times as much.” The number before those words is the **multiplier**.
- 3 Write a multiplication equation: $\text{multiplier} \times \text{smaller amount} = \text{answer}$.
- 4 Multiply to find the answer.



Example: Jake has 5 toy cars. Emma has 4 times as many. How many does Emma have?

Step 1 Two amounts: Jake has 5, Emma has more.

Step 2 The multiplier is 4 ("4 times as many").

Step 3 Equation: $4 \times 5 = ?$

Step 4 Multiply: $4 \times 5 = 20$.

✓ Emma has 20 toy cars.

Example: "42 is 6 times as many as what number?"

Step 1 Two amounts: the big number is 42, the small number is unknown.

Step 2 The multiplier is 6.

Step 3 Equation: $6 \times ? = 42$. Divide to find the unknown: $42 \div 6$.

Step 4 $42 \div 6 = 7$.

✓ 42 is 6 times as many as 7.

⚠ Watch Out! "More than" means ADD. "Times as many" means MULTIPLY. Don't mix them up! 5 more than 3 is 8, but 5 times as many as 3 is 15.



Find more at
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Multiplication as a Comparison Practice

Write the Equation

1. 6 times as many as 3 = _____

2. 4 times as many as 7 = _____

Find the Missing Number

3. $5 \times \underline{\hspace{2cm}} = 35$

4. $\underline{\hspace{2cm}} \times 8 = 48$

Put It All Together

5. A giraffe is 6 meters tall. A tree is 3 times as tall as the giraffe. How tall is the tree?

Answer: _____ meters

6. Sam has 56 stickers. That is 8 times as many as Lily. How many stickers does Lily have?

Answer: _____ stickers



CHAPTER

2

Adding, Subtracting, Multiplying, and Dividing Whole Numbers

★ *What's Inside* ★

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★ 2.1 Add Whole Numbers ★

What You'll Learn

- Add multi-digit whole numbers using the standard algorithm
- Regroup (carry) when a column adds to 10 or more

Words to Know

- ▶ **Sum** — The answer when you add numbers together.
- ▶ **Regroup (Carry)** — When a column adds to 10 or more, write the ones digit and carry the tens digit to the next column.
- ▶ **Standard Algorithm** — The step-by-step method of adding column by column from right to left.

How to Add Multi-Digit Numbers

- 1 Write the numbers stacked, lined up by place value (ones under ones, tens under tens).
- 2 Add the **ones** column. If the sum is 10 or more, write the ones digit and carry the tens digit.
- 3 Add the **tens** column, including any carried digit.
- 4 Continue left through each column (hundreds, thousands) until done.



Example: Add $2,465 + 3,287$.

Step 1 Write the numbers stacked:

2,465 on top, 3,287 below, digits lined up.

Step 2 Ones: $5 + 7 = 12$. Write 2, carry 1.

Step 3 Tens: $6 + 8 + 1 = 15$. Write 5, carry 1.

Step 4 Hundreds: $4 + 2 + 1 = 7$. Thousands: $2 + 3 = 5$.

$$\checkmark 2,465 + 3,287 = 5,752$$

Example: Add $4,596 + 1,738$.

Step 1 Stack the numbers, lined up by place value.

Step 2 Ones: $6 + 8 = 14$. Write 4, carry 1.

Step 3 Tens: $9 + 3 + 1 = 13$. Write 3, carry 1.

Step 4 Hundreds: $5 + 7 + 1 = 13$. Write 3, carry 1. Thousands: $4 + 1 + 1 = 6$.

$$\checkmark 4,596 + 1,738 = 6,334$$

⚠ Watch Out! Don't forget to add the carried digit! Write it small above the next column so you don't miss it.



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Addition Practice

Set Up the Problem

1. Write $3,572 + 4,689$ stacked by place value. Which column do you start adding from?

Add Step by Step

2. $547 + 386 =$ _____

3. $2,835 + 4,697 =$ _____

Put It All Together

4. $6,284 + 3,957 =$ _____

5. $15,463 + 7,849 =$ _____

6. A library has 3,478 fiction books and 2,965 non-fiction books. How many books does the library have in all?

Answer: _____ books



THANK YOU

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- ✓ *Hundreds of practice problems*
- ✓ *Complete answer key with explanations*
- ✓ *Colorful visuals and step-by-step examples*
- ✓ *Reference sheets and progress trackers*

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