

# Ohio OST Grade 4 Math Step by Step

*A Beginner Friendly Guide to Learning Math*

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ONE STEP AT A TIME

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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!

# X<sup>1</sup> Math Symbols You Should Know X<sup>1</sup>

*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  $90^\circ$
- **Right Angle** — exactly  $90^\circ$
- **Obtuse Angle** — greater than  $90^\circ$



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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  $3 \times 5$ .
- ▶ **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  
[ViewMath.com/Grade4](https://www.viewmath.com/Grade4)



## 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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