

## Grade Eight Math Checklist with Examples

Eighth grade is a bridge between general arithmetic and high school-level math. It's a great time to either review and strengthen foundational concepts or introduce more advanced thinking through algebra, geometry, and business math.

### Number Sense and Exponents

- Review place value and base-10 relationships
- Understand and calculate with exponents
- Compare and order large and small numbers

#### Examples:

- What is  $10^3$ ?
- Which is greater: 0.004 or 0.04?

### Fractions, Decimals, and Percents

- Review all four operations with fractions and decimals
- Convert between forms fluently
- Solve real-life percent problems including markups, discounts, and interest

#### Examples:

- What is 15% of \$240?
- Convert  $\frac{4}{5}$  to a decimal and a percent

### Algebra Foundations

- Evaluate expressions with variables and exponents
- Solve multi-step equations
- Use formulas in real-world situations (distance = rate  $\times$  time)

#### Examples:

- Solve:  $3x - 5 = 16$
- Use the formula  $A = lw$  to find area when  $l = 8$  and  $w = 6$

### Ratios and Proportions

- Use ratios to compare quantities
- Solve proportions using cross multiplication
- Apply ratios to scale drawings and real-life contexts

**Examples:**

- A map has a scale of 1 inch = 10 miles. How many miles is 3.5 inches?
- Is  $9/12 = 15/20$ ?

**Geometry and Measurement**

- Calculate area, surface area, and volume of 2D and 3D shapes
- Use the Pythagorean Theorem (if ready)
- Convert measurement units in real-world problems

**Examples:**

- What's the surface area of a rectangular box:  $4 \times 5 \times 3$ ?
- Convert 2.5 gallons to quarts

**Graphs, Data, and Probability**

- Interpret line graphs, circle graphs, and scatter plots
- Work with averages: mean, median, mode, range
- Understand and calculate probability of compound events

**Examples:**

- If you flip a coin and roll a die, what is the probability of heads and a 6?
- Make a circle graph showing time spent on weekly activities

**Business and Real-Life Math**

- Calculate interest, discounts, markups, and tax
- Use budgeting and unit pricing
- Understand overhead, profit, and break-even points

**Examples:**

- A \$30 item is 25% off. What's the sale price?
- You made \$200 selling lemonade. Your supplies cost \$75. What's your profit?

**Problem Solving and Logical Thinking**

- Tackle multi-step, real-life problems
- Choose appropriate strategies to solve problems
- Practice explaining reasoning clearly

**Examples:**

- You are tiling a floor that's 8 ft by 10 ft. Each tile covers 1 square foot. How many tiles do you need?
- You are saving for a \$500 laptop. If you save \$25 per week, how long will it take?

This final stage of foundational math builds confidence and competence before moving into Algebra I or other high school-level courses.