

Unit 1 - Ratios and Proportional Relationships

Content Area: **Mathematics**
Course(s):
Time Period: **September**
Length: **6-8 weeks**
Status: **Published**

Unit Overview

This unit focuses on the Ratios and Proportional Relationships (RP) domain.

Essential Questions

"How can you use mathematics to describe change and model real-world situations?"

"How can you show that two objects are proportional?"

"How can percent help you understand situations involving money?"

Content

Rates

Complex Fractions and Unit Rates

Convert Unit Rates

Proportional and Nonproportional Relationships

Rate of Change

Slope

Direct Variation

Percent of a Number

Percent and Estimation

The Percent Proportion

The Percent Equation

Percent of Change

Sales Tax, Tips, and Markups

Discount

Financial Literacy: Simple Interest

Skills

Determine unit rates

Simplify complex fractions and find unit rates

Convert units of measure between derived units to solve problems

Identify proportional and nonproportional relationships

Identify proportional relationships by graphing on the coordinate plane

Use proportions to solve problems

Identify constant rates of change using tables and graphs

Identify slope using tables and graphs

Use direct variation to solve problems

Find percent of a number

Estimate percents using fractions and decimals

Use the percent proportion

Use the percent equation

Find percent of change and percent error

Solve problems involving sales tax, tips, and markup

Solve problems involving discount

Solve problems involving simple interest

Assessments

Self-Check Quiz

Chapter Tests

Online Standardized Test Practice

Chapter Project

Teacher Observation

Lessons/Learning Scenarios

Glencoe Math Course 2 Text

Chapter 1 Lessons 1-8

Chapter 2 Lessons 1-8

Standards

CCSS.Math.Content.7.RP.A.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
CCSS.Math.Content.7.RP.A.2.a	Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
CCSS.Math.Content.7.RP.A.2.c	Represent proportional relationships by equations.
CCSS.Math.Content.7.RP.A.2.d	Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.
CCSS.Math.Content.7.RP.A.3	Use proportional relationships to solve multistep ratio and percent problems.
CCSS.Math.Content.7.NS.A.3	Solve real-world and mathematical problems involving the four operations with rational numbers.
CCSS.Math.Content.7.EE.A.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
CCSS.Math.Content.7.EE.B.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

Resources

Glencoe Math, Course 2, McGraw-Hill, 2013