Ratios and Proportional Relationships 6.RP.A*

Understand ratio concepts and use ratio reasoning to solve problems.

STANDARD 1

6.RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*

STANDARD 2

6.RP.A.2: Understand the concept of a unit rate *a/b* associated with a ratio *a:b* with $b \neq 0$, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $\frac{3}{4}$ cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."*[1]

[1]Expectations for unit rates in this grade are limited to non-complex fractions.

STANDARD 3

6.RP.A.3: Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

   a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

   b. Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?*

   c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part and the percent.

   d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

*Major cluster

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Cluster A: Understand ratio concepts and use ratio reasoning to solve problems.

Grade 6 Overview

The focus for this cluster is the study of ratio concepts and the use of proportional reasoning to solve problems. Students learn how ratios and rates are used to compare two quantities or values and how to model and represent them. Sixth graders find out how ratios are used in real-world situations and discover solutions to percent problems using ratio tables, tape diagrams, and double number lines. Students also convert between standard units of measure.

Standards for Mathematical Practice

SFMP 1. Make sense of problems and persevere in solving them.

Sixth graders interpret and solve ratio problems.

SFMP 2. Reason abstractly and quantitatively.

Students solve problems by analyzing and comparing ratios and unit rates in tables, equations, and graphs.

SFMP 4. Model with mathematics.

Students model real-life situations with mathematics and model ratio problem situations symbolically.

SFMP 6. Attend to precision.

Students communicate precisely with others and use clear mathematical language when describing a ratio relationship between quantities.

SFMP 7. Look for and make use of structure.

Sixth graders begin to make connections between covariance, rates, and representations showing the relationships between quantities.

Related Content Standards

4.OA.2   5.NF.3   5.G.1   5.G.2   5.MD.1   6.EE.9   7.RP.A.1

Notes