**Standards Dissection: Unit 3 Ratios and Proportional Relationships**

**Key Idea:** Analyze proportional relationships and use them to solve real-world and mathematical problems.

**RP.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks $\frac{1}{2} $mile in each $\frac{1}{4} $ hour, compute the unit rate as the complex fraction $\frac{\frac{1}{2}}{\frac{1}{4}} $miles per hour, equivalently 2 miles per hour.

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**RP.2** Recognize and represent proportional relationships between quantities.

**RP.2a** 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.

**RP.2b** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

**RP.2c** Represent proportional relationships by equations.

**RP.2d** 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.

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**RP.3** Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, and fees.

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**Vocabulary: Unit 3 Ratios and Proportional Relationships**

**rate**- a ratio that compares two quantities measured in different units

**proportion**- statement that two rates or ratios are equivalent

**unit rate**- rate in which the second quantity (denominator) is one unit

**rate of change**- a rate that describes how one quantity changes in relation to another quantity

**constant-** a value that does not change

**constant of proportionality**- a constant ratio of two variables related proportionally (represented by the variable, k or m)

**complex fraction-** a fraction that has a fraction in its numerator, denominator, or both.

**proportional relationship**- a relationship between two quantities in which the rate of change is constant, or the ratio of one quantity to the other is constant (can be described with the equation y=mx)

**conversion factor**- a fraction whose numerator and denominator represent the same quantity but use different units

**percent increase**- a percent of change describing an increase in a quantity

**percent decrease**- a percent of change describing a decrease in a quantity

**percent**- a ratio that compare a number to 100

**percent of change**- a ratio that compares the change in quantity to the original amount

**markup**- increase in price

**markdown/discount-** decrease in price

**sales tax-** the tax on the sale of an item or service (a percent of the purchase price)

**simple interest**- a fixed percent of the principal

**principal-** the original amount of money deposited or borrowed

**commission**-a percentage of money given to a sales representative for their services