Packet 2: Percents

Dear Parents/Guardians,

In Proportional Reasoning: Packet 2, students solve problems involving percent as a number and percent of a number using visual representations, sense-making strategies, computations, and equations. They apply these strategies to solving application problems involving tax, tip, discount, and markup.

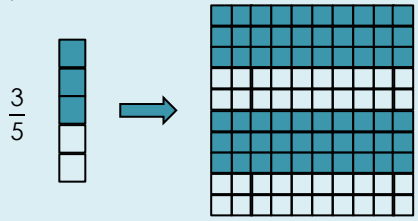
Percent as a Number

Percent means "parts per hundred." Students rename fractions and decimals as percents using visual representations, sense-making strategies, and computational procedures.

Example: Express $\frac{3}{5}$ as a percent and as a decimal.

From Fraction to Decimal and Percent

Students shade hundreds grids to find an equivalent fraction, decimal, and percent.



$$\frac{3}{5} = \frac{3}{5} \times \left(\frac{20}{20}\right) = \frac{60}{100}$$

$$\frac{3}{5} = 60\%$$

More About Decimals

We can name $\frac{60}{100}$, "sixty-hundredths."

$$\frac{60}{100} = 0.60$$

Sixty-hundredths is equivalent to six-tenths.

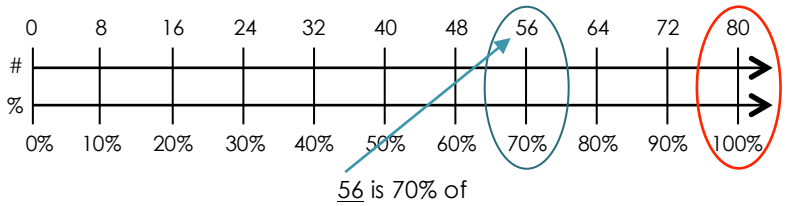
$$\frac{60}{100} = \frac{6}{10} = 0.60$$

Percent of a Number

Students find percent of a number using strategies such as a double number line and equations.

Example: What is 70% of 80?

Double Number Line



56 is 70% of

A double number line reveals answers to many questions.
For example:
48 is 60% of what? (80)
16 is what percent of 80? (20%)

Equation

$$\frac{x}{80} = \frac{70}{100} \text{ or } \frac{x}{70} = \frac{80}{100}$$

$x = 56$

Percent Applications

Students solve percent problems with various strategies, including "chunking."

Example: How much would a $30 shirt cost with a 15% discount?	
10% of 30 = 3	Since 10% is $\frac{1}{10}$, take $\frac{1}{10}$ of 30.
5% of 30 = 1.50	Since 5% is half of 10% take half of 3.
15% of 30 = 4.50	10% of 30 + 5% of 30 = 15% of 30 3.00 + 1.50 = 4.5
15% off of $30	$30.00 – $4.50 = $25.50

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PROPORTIONAL REASONING PACKET 2

By the end of the packet, your student should know…

- How to convert between fractions, decimals and percents Lesson 2.1
- How to find the percent of a number Lesson 2.2
- How to solve problems involving taxes, tips, markups, and discounts Lesson 2.3

Additional Resources

- For renaming fractions as decimals using computational procedures: http://youtu.be/Y1V5mZaMfTk
- For renaming fractions as percents using computational procedures: http://youtu.be/QrtTyx4HBuc
- For additional notes and strategies, please see section 2.5.