Module 7   Ratio, Proportion, and Percent
Lesson 5   Percent Proportions

Lesson Notes 7.5

Lesson Objectives

- Use the percent proportion to write fractions as percents.
- Determine the percent of a number and solve related problems in real-world situations (e.g. gratuities, sales tax, discounts, and mark up).
- Use percents to estimate.

Subtopic 1   **Use the Percent Proportion to Write Fractions as Percents**

A proportion states that two ratios are **equivalent**.
If one of the **denominators** of the equivalent fractions is one hundred, the proportion is a **percent** proportion.

Solve using the percent proportion.

1   Moon Lighting Company tested 250 light bulbs and found five light bulbs to be defective. What percent of the light bulbs tested were defective?

$$\frac{\text{part}}{\text{whole}} = \frac{?}{100}$$

$$\frac{5}{250} = \frac{?}{100}$$

$$\frac{5 \div 2.5}{250 \div 2.5} = \frac{2}{100}$$

Two percent of the light bulbs tested were defective.

2   The Moon Dogs football team won eight games last year. This year, they won 12 games. What percent more games did the Moon Dogs win this year?

$$\frac{\text{part}}{\text{whole}} = \frac{?}{100}$$

$$12 - 8 = 4$$

$$\frac{4}{8} = \frac{50}{100}$$

$$\frac{4}{8} = \frac{1}{2} = 50\%$$

The Moon Dogs won 50% more games this year.

Subtopic 2 **Estimate a Percent of a Number**

3 Mary's weekly salary is $880. Each year, she receives a bonus equal to 42% of her weekly salary. About how much is Mary's bonus?

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42% of $880

40% of $900 = $360

Mary's bonus is about $360.

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Subtopic 3 **Determine the Percent of a Number and Solve Problems**

Markup is an amount **added** to the cost to produce an item in order to determine the **selling price**.

A **discount** is an amount taken off a regular price.

4 Drew buys a burger for $8.50 and a milkshake for $3.50. He wants to leave a 15% tip. How much gratuity should Drew leave?

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burger: **$8.50**
+ milkshake: **$3.50**
$12.00

Find 15% of $12.00.

10% → $1.20
+ 5% → $0.60
15% → $1.80

Drew should leave $1.80 as a gratuity.

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