

Sec 5.3 – Solving Percent Problems Notes

When solving percent problems, it is important to identify whether you are looking for the part or the whole or the percent. You can use **cross multiply** to solve for any of these.

$$\boxed{\frac{\%}{100\%} = \frac{\text{of " "}}{\text{ " "}}}$$

} must know!

**1. Finding the part**

Example – The soccer team won 80% of 25 games they played this year. How many games did they win?

Find the part

$$\frac{80}{100} = \frac{x}{25} \quad x = 20 \text{ games.}$$

**2. Finding the whole**

Example – In Ms. Lo's class, 18 students were on the honour roll. If this represents 60% of her students in total, how many students were there in total?

Find the whole

$$\frac{60}{100} = \frac{18}{x} \quad x = 30 \text{ students.}$$

**3. Finding the percent**

To find the percent, divide the part by the whole to obtain the decimal equivalent and multiply by 100 to obtain the percent equivalent. You can also cross multiply.

Example – Carl read 60 pages of 180 pages of his book for English class. What percent has he read so far?

$$\frac{60}{180} = \frac{x}{100} \quad \left\{ \frac{60}{180} \times 100 = 33.3\% \right.$$

## Practice

1. When water freezes, its volume increases by approximately 10%. By how much does the volume of a 45 mL ice cube increase when it freezes?

$$\frac{x}{45} = \frac{10}{100} \quad x = 4.5 \text{ mL}$$

2. A box of marbles fell on the floor and 30 of them fell out. This was 20% of the marbles in the box. How many marbles were originally in the box?

$$\frac{30}{x} = \frac{20}{100} \quad x = 150 \text{ marbles.}$$

3. If 70% of a number is 63, find the number.

$$\frac{63}{x} = \frac{70}{100}$$

$$x = 90$$

4. If 175% of 20 is what number?

$$\frac{x}{20} = \frac{175}{100}$$

$$x = 35$$

## 4. Percent Increase/Decrease

To find percent increase or decrease, write the increase or decrease as a fraction of the original price. Then, multiply by 100.

1. The price of a carton of milk at the cafeteria increased from \$0.90 to \$1.20. What was the percent increase in price?

$$\$1.20 - \$0.90 = \$0.30$$

$$\frac{\$0.30}{\$0.90} \times 100 = 33.3\% \quad \checkmark$$

2. The price of pasta salad at the cafeteria decreased from \$2.50 to \$1.25. What was the percent decrease in price?

$$\$2.50 - \$1.25 = 1.25$$

$$\frac{\$1.25}{\$2.50} \times 100 = 50\% \quad \checkmark$$