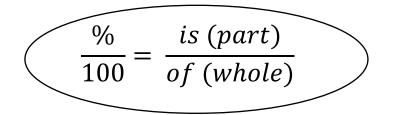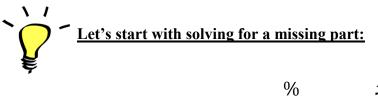# Percent Word Problems

To solve percent word problems, you use what you know to solve for what you need to know. Sometimes you need to solve for a missing part. Other times you need to solve for a missing percent. And still other times you need to solve for a missing whole.
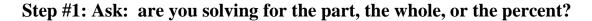
Use and solve the following proportion to solve all Percent Word Problems:

$$\frac{\%}{100} = \frac{is\ (part)}{of\ (whole)}$$

Let's start with solving for a missing part:

$$\frac{\%}{100} = \frac{x}{of\ (whole)}$$

1. Approximately 30% of the students in Mrs. Doolan's homeroom have read *The Hunger Games*. If there are 20 people in Mrs. Doolan's homeroom, how many students have read the book?

Step #1: Ask: are you solving for the part, the whole, or the percent?

Step #2: Set up the proportion: $\quad \dfrac{30}{100} = \dfrac{x}{20}$
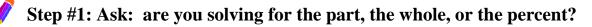
Step #2: Cross multiply: $\quad 30 \times 20 = 100x$

Step #3: Solve for the value of x: $\quad 600 = 100x$

$$6 = x$$

2. A Quaker Chewy granola bar has 88 calories. About 25% of these calories are from fat. How many calories are from fat?

Step #1: Ask: are you solving for the part, the whole, or the percent?

Step #2: Set up the proportion: $\dfrac{25}{100} = \dfrac{x}{88}$
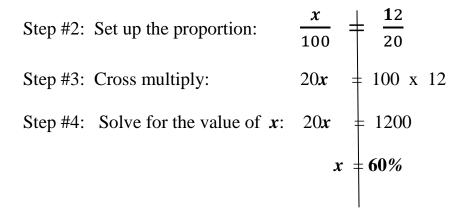
Step #3: Cross multiply:

Step #4: Solve for the value of x:

Next, let's solve for finding the missing PERCENT (%).

$$\frac{x}{100} = \frac{is \ (part)}{of \ (whole)}$$

3. Ms. Dengos asked students to bring in a pack of gum to complete a lab in science class. 12 of her A period students remembered to bring in the gum. If her A period has 20 students, approximately <u>what percent</u> of her class remembered to bring in their gum?

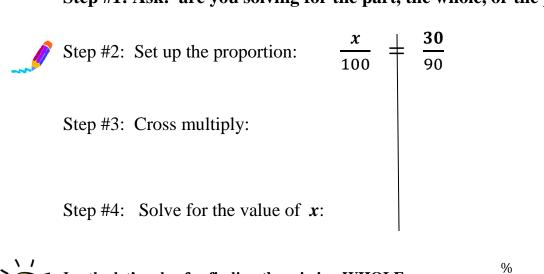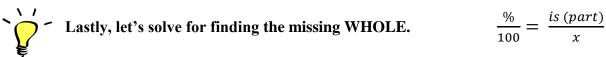**Step #1: Ask: are you solving for the part, the whole, or the percent?**

Step #2: Set up the proportion: $\dfrac{x}{100} = \dfrac{12}{20}$

Step #3: Cross multiply: $20x = 100 \times 12$

Step #4: Solve for the value of x: $20x = 1200$

$x = 60\%$

$$\frac{x}{100} = \frac{is \ (part)}{of \ (whole)}$$

4. Jacob spends 90 minutes in total each night doing homework. He spends 30 minutes on his math homework. What percent of his total homework time is spent on his math homework?

Step #1: Ask: are you solving for the part, the whole, or the percent?

Step #2: Set up the proportion: $\frac{x}{100} = \frac{30}{90}$

Step #3: Cross multiply:

Step #4:   Solve for the value of x:

Lastly, let's solve for finding the missing WHOLE. $\frac{\%}{100} = \frac{is \ (part)}{x}$

5. There are 16 blue M&M's. This makes up 8% of a large bag of M&M's. How many M&M's are in the whole large bag?

Step #1: Ask: are you solving for the part, the whole, or the percent?

Step #2: Set up the proportion: $\frac{8}{100} = \frac{16}{x}$

Step #3: Cross multiply: $8x = 100 \ x \ 16$

Step #4:   Solve for the value of x: $8x = 1600$

$x = 200$

6. Papa Gino's served 135 customers during the dinner rush. This was 75% of the number of customers served the night before. How many customers were served the previous evening?

Step #1: Ask: are you solving for the part, the whole, or the percent?

Step #2: Set up the proportion: $\dfrac{75}{100} = \dfrac{135}{x}$

Step #3: Cross multiply:

Step #4: Solve for the value of x: