

Percentages – A Review

What is a percentage?

- It is a **ratio**... AKA a fraction!
- The **general form** of a percentage is:

$$\frac{\textit{anything}}{100} \quad \boxed{\text{A number out of 100}}$$

Examples:

$$\frac{78}{100} \text{ is } 78\%$$

$$\frac{5}{100} \text{ is } 5\%$$

$$\frac{23}{100} \text{ is } 23\%$$

- When we are working with **percentages**, we have to first represent them as **decimals**
- **Since they are out of 100, think about pennies!**

Converting Percentages to Decimals and Vice Versa

- Think of percentages in terms of money...

$$100\% = \$1.00$$

$$76\% = \$0.76$$

$$50\% = \$0.50$$

$$23\% = \$0.23$$

$$4\% = \$0.04$$

- So if I have a decimal, I can easily convert it to a percentage.

$$0.45 = 45\%$$

$$0.61 = 61\%$$

$$1.20 = 120\%$$

$$0.003 = .3\%$$

Examples:

$$36\% = \frac{36}{100} = 0.36$$

$$78\% = \frac{78}{100} = 0.78$$

$$64\% = \frac{64}{100} = 0.64$$

$$25\% = \frac{25}{100} = 0.25$$

$$54\% = \frac{54}{100} = 0.54$$

$$40\% = \frac{40}{100} = 0.40$$

The only hiccup is when you have a decimal as a percentage already.

$$25.5\% = \frac{25.5}{100} = 0.255$$

$$12.5\% = \frac{12.5}{100} = 0.125$$

$$7.5\% = \frac{7.5}{100} = 0.075$$

$$3.25\% = \frac{3.25}{100} = 0.0325$$

$$45.8\% = \frac{45.8}{100} = 0.458$$

$$0.1\% = \frac{0.1}{100} = 0.001$$

Figuring out Percentages of Numbers

- This is used all the time when we think about **discounts, deals, or calculating the tip**
- All we need to do is some good old fashion multiplication!
- We **multiply** the **percentage in the form of a decimal** by the **amount**.

Practice:

1. What is 37% of 200?

2. What is 8.5% of 86?

3. What is 43% of 1200?

4. What is 3.5% of 880?

This works the same way with money

Practice:

5. What is 12.5% *of* \$45?

6. What is 20% *of* \$120?

7. So if the deal is for 25% *off of* \$150, how much would you have to pay?

8. If you buy a new TV for \$899, and you get a 15% *discount*, how much is it?

- We can use this to **calculate tax** and the **total** we have to pay too!
 - We first have to convert the tax from a **percentage to a decimal**
 - Next we **multiply by the price**
 - Then we **add that amount** to the **original price** to find the total we have to pay

Practice:

9. That is the final purchase price of a \$59 item with 5.5% *GST*?

10. What is the final purchase price of a \$145 pair of shoes with 12% *tax*?

11. What is the final purchase price of a \$899.95 PS5 with 7.5% *tax*?