Percent Change & Percent Error Key

Sometimes things change like prices and temperature! Often consumers want to find the percent that the price or temperature changed. To find the **percent change**, set up a proportion using the model below!

$$\frac{\%}{100} = \frac{change}{original}$$

Let's try some examples...

Ex. 1 During a thunderstorm, the outdoor temperature went from 88°F to 77°F. Find the percent of decrease.

$88-77=11$

$$\frac{x}{100} = \frac{11}{88}$$

$$\frac{88x}{88} = \frac{1100}{88}$$

$X = 12.5$

There was a 12.5% decrease!

Ex. 2 The price of a share of stock went from $30 to $27. What was the percent of decrease?

$30-27=3$

$$\frac{x}{100} = \frac{3}{30}$$

$$30x = 100(3)$$
$$\frac{30x}{30} = \frac{300}{30}$$

$X = 10$

There was a 10% decrease!

Ex. 3 A house originally listed for sale at $250,000. After 3 months, the seller dropped the price to $235,000. What was the percent of decrease in the price.

$250,000 - 235,000 = 15,000$

$$\frac{x}{100} = \frac{15,000}{250,000}$$

$$\frac{x}{100} = \frac{15}{250}$$

$$250x = 15(100)$$
$$\frac{250x}{250} = \frac{1500}{250}$$

$x = 6$

There was a 6% decrease!

Percent Error is a measure of the amount of error made in an experiment. It is found by comparing the expected result with the result obtained from the experiment. Use the formula below to find the **percent error**.

$$\frac{\text{Percent error}}{100} = \frac{\text{change}}{\text{actual value}}$$

Let's try some examples...

Ex. 1   You estimated your monthly car payment to be \$315. The actual car payment turned out to be \$300. Calculate the percent error in these payments.

$315 - 300 = 15$

$$\frac{x}{100} = \frac{15}{300}$$

$300x = 15(100)$
$300x = 1500$

$$\frac{300x}{300} = \frac{1500}{300}$$

$x = 5$

Your estimation was over by 5%

Ex. 2   Juanita measured the volume of a 2.4 liter container to be 2.38 liters. What is the percent error in Juanita's measurement?

$2.4 - 2.38 = .02$

$$\frac{x}{100} = \frac{.02}{2.4}$$

$2.4x = 100(.02)$

$$\frac{2.4x}{2.4} = \frac{2}{2.4}$$

$x = .8\overline{3}\% \approx 1$

Juanita's percent error was about 1% lower.

Ex. 3   You estimate that there are 90 jelly beans in a jar when there are actually 130. What is your percentage error?

$130 - 90 = 40$

$$\frac{x}{100} = \frac{40}{130}$$

$130x = 100(40)$
$130x = 4000$

$$\frac{130x}{130} = \frac{4000}{130}$$

$x \approx 30.8$

Your estimate was about 30% lower!