Finding Percent of Change

There are three different ways that a percent can change:

1. Percent of Increase
2. _____
3. _____

Vocabulary Words

Percent of Change - the amount, written as a percent, that a number _____ or _____.

↑*Percent of Increase* - when the original amount _____, the percent of change is called a percent of _____.

↓*Percent of Decrease* - when the original amount _____, or gets smaller, the percent of change is called a percent of _____.

Percent Error - the percent that an estimated quantity differs from the actual amount.

How do you find the percent of change?

1. Take the amount of change (_____ the two quantities)
2. _____by the original amount
3. Change the _____to a percent

$$\frac{\text{amount of change (subtract)}}{\text{original amount}}$$

*Remember! To change a decimal to a percent, you move the decimal two places to the _____and add a percent sign.

Pause the video and convert the decimals below to percents:

a. 2.4 _____ b. 5.0 _____ c. .046 _____

Finding Percent of Change

Example 1:

12 inches to 48 inches

The second number is larger than the first, so this is a percent of _____!

$$\frac{\text{amount of change}}{\text{original amount}} = \frac{48 - 12}{\quad} = 3$$

Write 3 as a percent: _____

The percent of increase between 12 inches and 48 inches is _____.

Example 2:

71 miles to 42.5 miles

The second number is _____than the first, so this is a percent of _____!

$$\frac{\text{amount of change}}{\text{original amount}} = \frac{71 - 42.5}{\quad}$$

Find the difference of the quantities below.

$$\begin{array}{r} 71 \\ -\ 42.5 \\ \hline \end{array}$$

$$\frac{28.5}{71} \longrightarrow 0.4014$$

Write 0.4014 as a percent: _____

Example 3:

$\frac{1}{4}$ *to* $\frac{1}{2}$

The second number is _____than the first, so this is a percent of _____!

$$\frac{\text{amount of change}}{\text{original amount}} = \frac{\frac{1}{2} - \frac{1}{4}}{\frac{1}{4}}$$

$\frac{\frac{1}{4}}{\frac{1}{4}}$ This is the same as $\frac{1}{4} \div \frac{1}{4}$ which is the same as _____by the reciprocal.

$\frac{1}{4} \times \frac{4}{1} =$ _____

So, the percent of change is _____.

Finding Percent of Change

Example 4:

Find the new amount: 10 meters increased by 25%

1. We need to find what 25% of 10 is.
   10 × _____ = 2.5

2. Increase 10 by 2.5
   10 + 2.5 = _____

3. A 25% increase of 10 is _____ meters.

Example 5:

The table shows population data for a community. Find the percent of change from 2005 to 2012.

Year	Population
2005	119,000
2012	140,000
2019	?

1. Find the amount of change: 140,000 - 119,000
   _____

2. Divide the difference by the original amount $\frac{121,000}{119,000}$
   121,000 ÷ 119,000
   _____

3. Convert the decimal to a percent.
   0.17647 → _____

The community has a percent of _____ from 2005 to 2012.

Use 17.65% to predict the population in 2019.

Year	Population
2005	119,000
2012	140,000
2019	?

If in 2012, the population increased by 17.65% in 2019, the population will increase by that percentage again.

140,000 increased by 17.65%

Find 17.65% of 140,000. 140,000 x 0.1765 = 24,710

Because it is an increase, you must _____ 140, 000 and 24, 710. If the trend continues, in 2019, the population will be _____.

Finding Percent of Change

How do you find the percent error?

1. Find the _____between the estimated and actual amount.

2. _____by the actual amount.

3. Convert the decimal to a _____.

Example 6:

You estimate that the grade you got on the math test is an 81. The actual grade you received is an 87. Find the percent of error.

1. How far off was your guess from the actual grade? _____

2. Divide the difference by the actual amount. $\frac{\quad}{87}$

3. Convert the decimal to percent.