6.4   Percent of Change

A percent of change is a ratio that compares the change in quantity to the original amount.

$$\text{percent of change} = \frac{\text{amount of change}}{\text{original amount}}$$

If the percent is positive, it is a percent of increase. If the percent is negative, it is a percent of decrease.

Example: Find the percent of change. Round to the nearest tenth, if necessary. State whether the percent of change is an increase or decrease.

a.) from $40 to $32   b.) from 56 inches to 63 inches

decrease   *increase*

$40 - 32 = 8$ $63 - 56 = 7$

$$\frac{8}{40} = \frac{1}{5} = 0.20$$ $$\frac{7}{56} = \frac{1}{8} = 0.125$$

$$5\overline{\smash{\big)}\,1.00} \quad = \boxed{20\%}$$ $$\boxed{12.5\%}$$

$$8\overline{\smash{\big)}\,1.000}$$

Example: Find the percent of change from 60°F to 84°F. State whether the percent of change is an [increase] or decrease.

$$84 - 60 = 24$$

$$\frac{24}{60} = \frac{2}{5} = 0.40.$$

$$= \boxed{40\%}$$

$$\begin{array}{r} .4 \\ 5\overline{)2.0} \\ -2\,0 \\ \hline 0 \end{array}$$

Example: Ty had 52 comic books. Now he has 61 books. Find the percent of change. Round to the nearest tenth. State whether the percent of change is an [increase] or decrease.

$$61 - 52 = 9$$

$$\frac{9}{52} \approx 0.1730$$

$$\approx \boxed{17.3\%}$$

$$\begin{array}{r} .1730 \\ 52\overline{)9.0000} \\ -52 \\ \hline 3780 \\ -364 \\ \hline 1560 \\ -156 \\ \hline 40 \end{array}$$

<u>Example:</u> Find the percent of change from 24 points to 18 points. State whether the percent of change is an increase or decrease.

$$24 - 18 = 6$$

$$\frac{6}{24} = \frac{1}{4} = 0.25$$

$$= \boxed{25\%}$$

$$4\overline{)1.00} \quad .25$$

<u>Example:</u> On Saturday, Smoothie Central made $1300 in sales. On Sunday, they made $900 in sales. What is the percent of change from Saturday to Sunday? Is it an increase or decrease?

$$1300 - 900 = 400$$

$$\frac{400}{1300} = \frac{4}{13} \approx 0.3076 \approx \boxed{30.8\%}$$

$$.3076$$
$$13\overline{)4.0000}$$
$$-39$$
$$\quad 100$$
$$\quad -91$$
$$\quad\quad 090$$
$$\quad\quad -78$$
$$\quad\quad\quad 12$$