

## PERCENT INCREASE OR DECREASE and DISCOUNTS

↳ EXAMPLE 1:

A person earns \$40,000 per year and receives a 15% salary increase. What is the new salary?

RECALL: 15% means 15 out of \_\_\_\_\_

As a fraction, 15% = \_\_\_\_\_

and as a decimal, 15% = \_\_\_\_\_

The formula needed to calculate the amount of increase is:

$$\left( \begin{array}{c} \text{Amount of} \\ \text{Increase} \end{array} \right) = \left( \begin{array}{c} \% \\ \text{Increase} \end{array} \right) \left( \begin{array}{c} \text{Total} \\ \text{Salary} \end{array} \right)$$

So we get:

$$\left( \begin{array}{c} \text{Amount of} \\ \text{Increase} \end{array} \right) = ( \quad ) ( \quad )$$

The amount of increase is \_\_\_\_\_

so the new salary is:

$$\left( \begin{array}{c} \text{New} \\ \text{Salary} \end{array} \right) = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$
$$= \underline{\hspace{2cm}}$$

↳

EXAMPLE 2:

The annual tuition at a college is presently \$4,000. Next year tuition is expected to increase by 19%. What will the tuition be next year?

Note:

$$\left( \begin{array}{c} \text{Amount of} \\ \text{Increase} \end{array} \right) = \left( \begin{array}{c} \text{Percent} \\ \text{Increase} \end{array} \right) \cdot (\text{Tuition})$$

So we get:

$$\left( \begin{array}{c} \text{Amount of} \\ \text{Increase} \end{array} \right) = ( \quad ) \cdot ( \quad )$$
$$= \underline{\hspace{2cm}}$$

The amount of increase is                     .

Therefore, next year's tuition can be calculated as such:

$$\left( \begin{array}{c} \text{Next year's} \\ \text{tuition} \end{array} \right) = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$
$$= \underline{\hspace{2cm}}$$

↳

EXAMPLE 3:

If an employee makes \$7.75 per hour and receives a \$0.70 raise, what is the percent increase? (Round to the nearest hundredth of a percent)

Note:

$$\left( \begin{array}{c} \text{Amount of} \\ \text{Increase} \end{array} \right) = \left( \begin{array}{c} \text{Percent} \\ \text{Increase} \end{array} \right) \left( \begin{array}{c} \text{Hourly} \\ \text{Wage} \end{array} \right)$$

Let  $x$  = the percent increase

Then

$$0.70 = (x)(7.75)$$

$$x = \underline{\hspace{2cm}}$$

Since  $x$  represents a percent, we must convert the decimal into a percent.

$$x = \underline{\hspace{2cm}}$$

and rounded to the nearest hundredth of a percent,  $x = \underline{\hspace{2cm}}$

↳

EXAMPLE 4:

A certain college has 40,000 students currently attending. Next year, it is estimated to decrease by 3.2%. How many students are expected to attend this college next year?

$$\text{NOTE: } \left( \begin{array}{c} \text{Amount of} \\ \text{Decrease} \end{array} \right) = \left( \begin{array}{c} \text{Percent} \\ \text{Decrease} \end{array} \right) \left( \begin{array}{c} \text{Number of} \\ \text{students} \end{array} \right)$$

Let  $x$  = The amount of decrease

Then

$$x = (0.032)(40,000)$$

The amount of decrease = \_\_\_\_\_

So next year's attendance =

\_\_\_\_\_ - \_\_\_\_\_

= \_\_\_\_\_

↳

EXAMPLE 5:

During a clearance sale, a pair of shoes that usually sells for \$39.95 is marked "15% off". What is the discount amount? What is the sale price?

## Percent Increase or Decrease and Discounts

### Practice Problems

1. A person earns \$45,000 a year and receives a 17.5% salary increase. What is the new salary?
2. If an employee earns \$8.00 an hour and receives a \$0.42 raise, what is the percent increase? [Round to the nearest hundredth of a percent]
3. The annual tuition at a four-year college is expected to increase from \$4,500.00 to \$5,400.00 next year. What is the percentage increase?

4. A person whose salary is \$42,000 a year receives a 2% pay cut. What is the salary decrease and what is the new salary?

5. During a clearance sale, a pair of shoes that originally sold for \$89.95 is marked down to \$53.97. What is the percent discount?