Intro to OSHA 100

Prevention is the priority of any safety program in the workplace. The purpose of the safety program is to inform workers about common safety practices and to protect workers from on-the-job injuries, illnesses, and even death.

Since the establishment of OSHA in 1970, work-related injuries, illnesses, and fatalities have decreased.

To work a percent of decrease problem, the three parts of a percent problem should be identified so the known values can be substituted into the general percent formula.

Amount = Rate x Base

$$A = R \times B$$

The base (B) is the whole or original amount the problem is based on. If one compares work-related statistics in 1970 before OSHA to current statistics, the 1970 value is the base because it is the original value.

The rate (R) is part of the base in percent form. For a problem involving a decrease, the percent of decrease, changed to a decimal, is the rate.

The amount (A) is the numerical part of the base that the rate also represents. If the rate is a percent of decrease, the amount represents how much decrease there was in the original base value.

ADDITIONAL NOTE:

If a percent problem involved a percent of increase instead of a percent of decrease, the process for solving the problem would be the same. The rate of increase would replace the rate of decrease and the amount would now be how much the original base value had increased.

Prior to 1970, there were 300,000 new cases of occupational illnesses and diseases reported each year. Since the establishment of OSHA, the overall illness rate has decreased by 42%. With a decrease of 42% in reported cases, what is the current number of new cases of illnesses and diseases each year?

SOLUTION:

Base (B) = 1970 value = 300,000 new cases

Rate of decrease (R) = 42%

First change the 42% to a decimal value. Since percent (%) means "parts per hundred," the rate of 42% must be divided by 100 which moves the decimal point two places to the left.

$$42\% = {}^{42}/_{100} = .42$$

Now substitute the known values into the percent formula.

Amount = Rate x Base

$$A = R \times B$$

$$A = .42 \times 300{,}000 = 126{,}000$$

Because the 42% represented the decrease in the new cases of occupational illnesses, 126,000 represents the decrease in the number of new cases.

To find the current number of new cases of occupational illnesses each year, subtract the decrease from the original value in 1970.

$$300{,}000 - 126{,}000 = 174{,}000$$

The current number of new cases of occupational illness each year is 174,000 compared to the 300,000 cases in 1970.

EXERCISES:

1. Prior to 1970, there were 14,000 job-related deaths every year. Since OSHA was established, work-related deaths have decreased 62%. What is the current number of job-related deaths each year?

2. Current OSHA statistics show that almost 6 million nonfatal workplace injuries occur each year. However, this number of injuries indicates that there was a 42% decrease from 1970 statistics. What would have been the number of non-fatal workplace injuries each year in 1970?