

Automotive Worksheet - Percentages

Review of Working With Percentages

A percent is a way of saying: "How many parts out of 100 are there?" For example, if 5 parts out of 100 were found defective, then we would say that 5% were defective.

To change a percentage to a fraction, simply place the percent number over 100 and reduce the fraction to its lowest terms. For instance, 5% can be written as $\frac{5}{100}$, which can be reduced by dividing a 5 out of the numerator and denominator, leaving $\frac{1}{20}$.

To change a percentage to a decimal, move the decimal point *two places to the left*. The decimal point for the percentage is usually not shown, but it is really there. In other words, we usually don't bother including the decimal place for a percentage like 40% (We don't write 40.%) But you can pretend it is there and count over two places to the left. For instance,

$\underline{75}\%$ Move the decimal place
over two spaces to the left.

That leaves .75, usually written with a zero out front so as to make it easier to see the decimal point: 0.75

Also 32% = 0.32 and 2% is 0.02, 0.3% is 0.003 and 150% is 1.5.

To write a decimal as a percent, you do the opposite: move the decimal place two spaces to the *right*:

0.44 = 44% and 0.06 = 6%.

If there aren't 100 parts, you can still use percents. All you have to do is to change the numbers to a fraction or a decimal then reduce it to its lowest terms.

Example 1: Say that 5 out of 20 oil changes take longer than 15 minutes. You can then say that

= $\frac{5}{20}$ ths of the oil changes take longer than 15 minutes. That can be reduced by dividing a 5 out of the top and bottom of the fraction leaving: $\frac{1}{4}$. So $\frac{1}{4}$ is the same as $\frac{5}{20}$. $\frac{1}{4}$ is also the same thing as 0.25, which is 25%. So 25% of the oil changes take longer than 15 minutes. You could also have multiplied the top and bottom of $\frac{5}{20}$ by 5. That would give you $\frac{5}{20} \times \frac{5}{5} = \frac{25}{100} = 0.25$ or 25%. There are often several ways to do a problem and it often doesn't matter which way you use.

Percentages are often used when dealing with money. For instance, calculating sales tax, discounts, interest on loans, and pay deductions. These may involve finding what percent one number is of another.

Example 2: 4 is what percent of 16?

To solve this, change the numbers to a fraction or a decimal, reduce them to the lowest terms and write the result as a percentage: