

Percents:

- A. There are many ways of working with percents. Some of the ways are basic and can be solved just by knowing the information in the [fractions](#) section of the memorizations.
- B. Most percents are in the form of small word problems, so just knowing what the words mean can be a HUGE help:

Of: Of means multiply.

Is: Is means equals.

What: What is the value you are looking for (i.e. the variable).

From: From means subtract.

Less Than: Less than means subtract

More Than: More than means addition

As: As means a ratio.

Into: Into means divide.

- C. Using the words above, we can set up an equation that should be simple enough to solve.

Ex [1] 20% of 54 is 9% of _____.

- Substituting we get - $(.20 \times 54) = .09 \times n$
- Simplifying we get - $(20 \times 54)/9 = n$. (Notice we can ignore the decimal places since there are the same number of decimal places in the denominator as in the numerator.)
- $(20 \times 54) / 9 = 20 \times 6 = 120$.
- The answer is 120.

Ex [2] If x% of 140 is 16.8, then x = _____.

- Substituting we get - $140x = 16.8$. (Ignore the percent for the time being. Just know that we will have to change the decimal to a percent in the end.)
- Solving we get $x = 16.8/140$ or $x = 168/1400$ which simplifies to $24/200$ or $12/100$ which is $.12$. Changing this to a percent we get 12. (Notice that I first divided by 7, then divided by 2. Also, there is no need, since we are dealing with percents, to simplify it to its most basic form.)
- The answer is 12.

Ex [3] 18% of $6\frac{2}{3}$ = _____.

- Substituting we get - $.18 \times 20\frac{2}{3}$.
- Notice you need to change the mixed number to an improper fraction.
- Simplifying we get - $.06 \times 20$ or 1.2.
- The answer is 1.2.

Ex [4] 5 more than 12% of 15 is _____.

- Substituting from above we get $5 + .12 \times 15 = \underline{\quad}$.
- Solving we get $5 + 1.8 = 6.8$.
- The answer is 6.8.

D. The following example is how to work percents in a different type of form. This problem is a little harder than just following the definitions above.

Ex [5] 14 is what percent more than 10? _____.

- In this problem we have to find out what times 10 and added back to 10 = 14. In other words, $10n + 10 = 14$.
- Solving $10n + 10 = 14$ we get $10n = 4$ or $n = .4$ or 40%.
- The answer is 40.