

WRITING RATES AS PERCENTS

To write a rate as a percent, do the following steps.

1. Write the rate as a fraction.
2. Re-write the fraction as an equivalent fraction that has a denominator of 100.
3. Use the numerator of your new fraction to make the percent.

For example, if you were given 35 out of 50. Here is how to write it as a %.

$$35 \text{ out of } 50 = \frac{35}{50}.$$

50 goes into 100 twice, so I can multiply 50 by 2 to get to 100. If I do it to the denominator, I must also do it to the numerator.

$$\text{So, } \frac{35 \cdot 2}{50 \cdot 2} = \frac{70}{100} = 70\%$$

Let's do another one. Say you have a rate of 18 out of 40.

$$18 \text{ out of } 40 = \frac{18}{40}.$$

However, 40 does not go into 100 without a remainder. So, we need to re-write the fraction with different number that will go into 100 without a remainder. Or in other words, I must *SIMPLIFY my fraction* before I can make the denominator 100.

So, since 2 goes into both 18 and 40, I can do the following:

$$\frac{18}{40} = \frac{18 \div 2}{40 \div 2} = \frac{9}{20}. \text{ 20 goes into 100 evenly 5 times. So multiply both 9 and 20 by 5.}$$

$$\frac{9 \cdot 5}{20 \cdot 5} = \frac{45}{100}. \text{ So, } 18 \text{ out of } 40 = \frac{18}{40} = \frac{9}{20} = \frac{45}{100} = 45\%.$$