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Solving Percent Problems Using Proportions

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Sometimes benchmarks are not enough to get an exact answer to a percent problem.

1.) What is 71% of 126?

2.) 85% of what is 119?

3.) 15 is what percent of 146.5?

Since a percent is a comparison to 100,
we can solve percent problems using proportions.

Fractions are $\frac{part}{whole}$ ratios, so when we write

a percent as a ratio, we often write it as $\frac{x\%}{100}$.

So when we set up a proportion using percents,
 we often set it up as $\frac{part}{whole} = \frac{\%}{100}$.

Some key words that help us identify the part and whole are "is" and "of."

Percent

1.) What **is** 71% of 126?

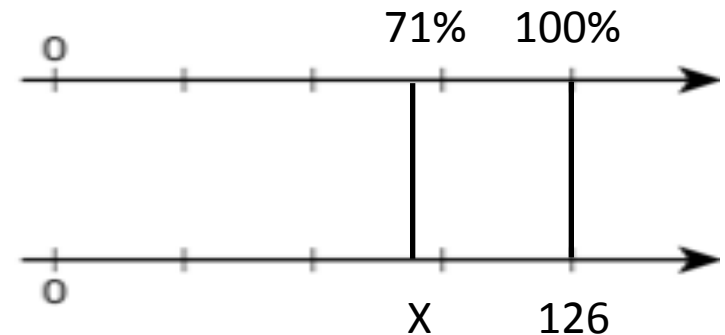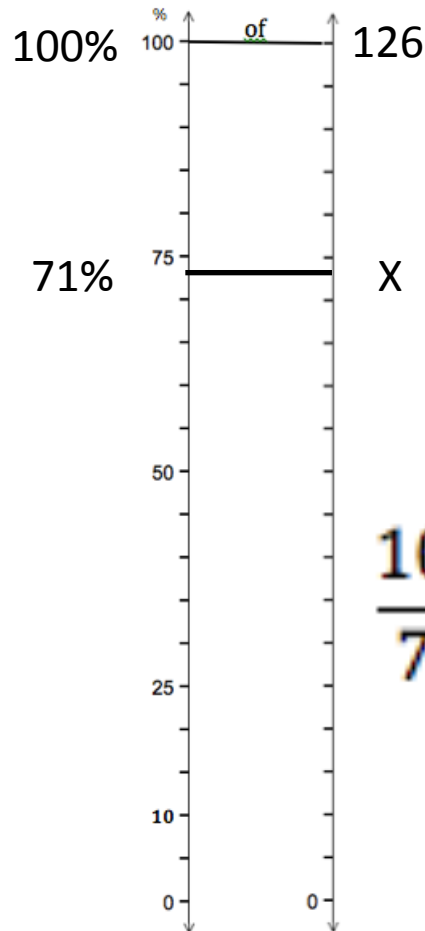Part

Whole

	#	%
Part		
Whole		

$$\frac{is}{of} = \frac{\%}{100\%}$$

Double number lines help us visualize percent problems.

Our visuals can also help us set up and check the proportions to solve the problem.

1.) What is 71% of 126?

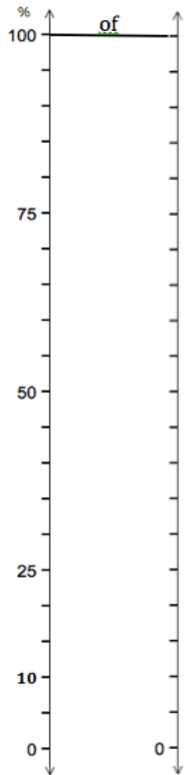100% — 126

71% — X

$$\frac{100}{71} = \frac{126}{x}$$

OR

$$\frac{71}{x} = \frac{100}{126}$$

Check if your answer is reasonable by putting it back in the visual and see if it makes sense.

Solving Percents Using Proportions

-- Use key words to set up the proportion.
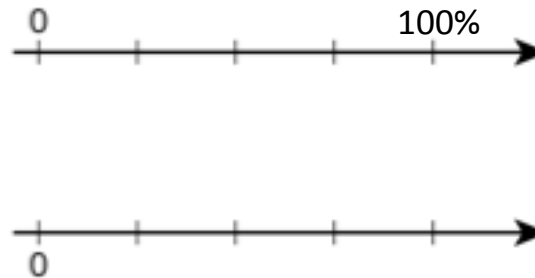
$$\frac{is}{of} = \frac{\%}{100\%}$$

OR

-- Use a vertical double number line to set up the proportion.

OR

-- Use a horizontal double number line to set up the proportion.
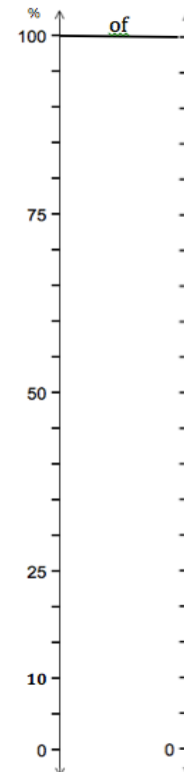
Percent

2.) 85% of what is 119?

Whole   Part

$$\frac{is}{of} = \frac{\%}{100\%}$$

Percent

3.) 15 is what percent of 146.5?

Part   Whole

$$\frac{is}{of} = \frac{\%}{100\%}$$