Percents: Problems Solved with Proportions

Vocabulary

Base	The "whole" in a problem. The standard used for comparison.
Amount	The "part" of the whole being compared to the base. Amount = Rate% of Base ➔ $Amount = \dfrac{r}{100} \bullet Base$
Rate	The ratio of the amount to the base written as a percent.
Percent Proportion	Proportion showing the relationship of the Rate, Amount, and Base $\dfrac{r}{100} = \dfrac{Amount}{Base}$

Examples:

Problem	Setup	Answer
15% of what number is 18? Rate Base Amount	$\dfrac{15}{100} = \dfrac{18}{B}$	$15B = 1800$ $B = 120$
45 is 25% of what number Amount Rate Base	$45 = \dfrac{25}{100} \bullet B$ or $\dfrac{25}{100} = \dfrac{45}{B}$	$25B = 4500$ $B = 180$
What % of 200 is 84? Rate base Amount	$\dfrac{r}{100} = \dfrac{84}{200}$	$200r = 8400$ $r = 42$ Rate=42%
150% of 90 is what? Rate Base Amount	$\dfrac{150}{100} = \dfrac{A}{90}$	$13500 = 100A$ $A = 135$

Did you notice that the "of" number is always the base?

TRY: Complete the following.

80 is 4% of what number?		
70 is what percent of 50?		
11% of 3,000 is what number?		
Find the base if 12.5% of the base is 625		
90 is 120% of what number?		
24 is what percent of 192?		

Examples-

Problem	Setup	Answer
What is 6.5% of 400? Amount Rate Base	$\dfrac{6.5}{100}=\dfrac{A}{400}$	$2600=100A$ $A=26$
650 is what % of 400? Amount Rate Base	$\dfrac{r}{100}=\dfrac{650}{400}$	$400r=65000$ $r=162.5$ Rate=162.5%
Find the base if 275% of the base is 220 Rate Base Amount	$\dfrac{275}{100}=\dfrac{220}{B}$	$275B=22000$ $B=80$
What is 365% of 86? Amount Rate Base	$\dfrac{365}{100}=\dfrac{A}{86}$	$31390=100A$ $A=313.90$
52.2 is what percent of 870? Amount Rate Base	$\dfrac{r}{100}=\dfrac{52.2}{870}$	$870r=5220$ $r=6$ Rate=6%
Find 225% of 90. Rate Base Amount	$\dfrac{225}{100}=\dfrac{A}{90}$	$20250=100A$ $A=202.50$

TRY: Complete the following.

What is 9.5% of 700?		
350 is what percent of 200?		
Find the base if 130% of the base is 780.		
28.8 is what percent of 960?		
What is 225% of 48?		
Find 150% of 50.		