Percents as Equations

Percent problems can be solved in many ways… Yesterday we used proportions. Today, we are going to use a purely algebraic technique to solve percent problems. We will translate the percent problem into an algebraic equation and then solve the equation!!!

Let's try some examples…

1. What number is 40% of 90?

$$X = .40(90)$$
$$X = 36$$

2. What percent of 500 is 75?

$$\frac{X \cdot 500}{500} = \frac{75}{500}$$

$$X = .15$$

15%

3. Forty-two is 70% of what number?

$$\frac{42}{.70} = \frac{.70x}{.70}$$

$$\boxed{x = 60}$$

4. Twenty-seven out of 30 is what percent?

$$\frac{27}{30} = x \qquad \boxed{x = 90}$$

5. Forty-five percent of 500 is what number?

$$.45(500) = x$$

$$\boxed{x = 225}$$

6. One hundred two is 85% of what number?

$$\frac{102}{.85} = \frac{.85x}{.85}$$

$$\boxed{120 = x}$$

7. Twelve out of 15 is what percent?

$$\frac{12}{15} = x$$

$$.8 = x \qquad \boxed{80\%}$$

8. Thirty percent of 60 is what number?

$$.30(60) = x$$

$$\boxed{x = 18}$$