6.3 Solving Basic Percent Problems

A Percent Problem will have 3 numbers related to each other in the Percent Statement of the Problem. A Percent Statement will be of the form:

the Amt is a PERCENT of the BASE.

For example:

\[ \text{20 is 50\% of 40} \quad \begin{array}{c}
\text{Amt} = \frac{20}{40} \\
\text{Percent} = \frac{50}{\text{Base}} \\
\text{Base} = \frac{40}{50}
\end{array} \]

(in other words 20 is half of 40)

There are some "Landmarks" in the Statement to Help Determine which Number should be Named Amt, Percent or Base.

1. The "Easiest to Find" landmark is the % symbol or the word "Percent" which will always identify the value for Percent.
2. The "2nd easiest to find" landmark is the word "of" which will always be followed by the value for the "Base".
3. The Amt can be determined last, after Percent and Base have been determined, by the process of elimination, although the word "is" usually follows the Amt Value.

Even when stated in a different order, the landmarks will still identify the 3 values:

\[ \text{50\% of 40 is 20} \quad \begin{array}{c}
\text{Percent} \quad \frac{\text{Base}}{\text{Amt}}
\end{array} \]

When solving a Percent Problem, one of the 3 values will be missing and will be labelled "X". For example, in the statement:

\[ 30 \text{ is what percent of 50?} \]

1. Base = 50 (comes after of) \[ x \]
2. Percent = \[ x \]
3. Amt = 30 (the word percent come after what)
Applications of Percents (Part I)

Statement: "P% of B is A" or A is P% of B
Formula: \[ \frac{A}{B} = \frac{P}{100} \]

Steps)
1. What appears after "of"? → That is "B"
2. Which number is with "%" symbol? → That is "P"
3. What is the number you didn't use in steps 1 and 2? → That is "A"
4. Solve the proportion using cross products.

1. Find 60% of 320.

2. 35% of what number is 28?

3. What percent of 60 is 9?
4. $35 is 14% of what amount?

5. What percent of 285 is 114?

Extra Credit for the Next 5 problems:

6. Of the 294 million people in the United States, 26% are smokers. How many are smokers?

7. In 2003, 705,827 immigrants entered the United States. Of this total, 7.1% were from India. How many immigrants came from India?
8. On a test of 80 items, Pedro got 85% correct. How many items did he get correct?

9. In a medical study, it was determined that if 800 people kiss someone who has a cold, only 56 will actually catch a cold. What percent is this?

10. Last night 530 people attended a basketball game. It was announced that 68% of the seats were filled. What is the full capacity of the gym?