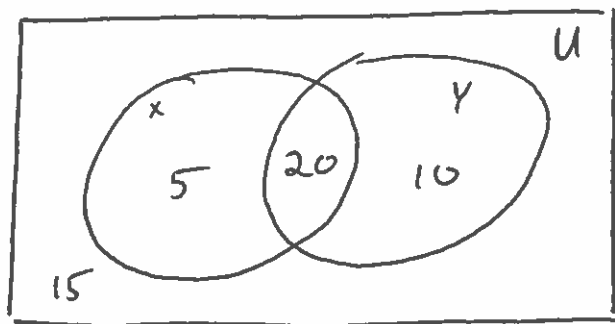## Quick Hit 5

1. Suppose that you have a universal set, U, with $n(U) = 50$. Suppose also that you have sets X and Y with $n(X) = 25$, $n(Y) = 30$, and $n(X \cup Y) = 35$. Draw a Venn Diagram describing the composition of the sets U, X, and Y. (Your Venn Diagram should have each region labeled with a number indicating how many elements of U are in that region).

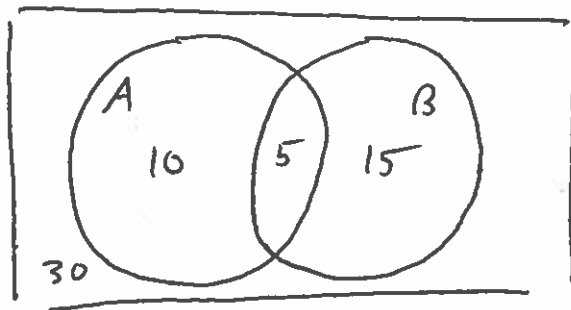$$n(X \cup Y) = n(X) + n(Y) - n(X \cap Y)$$

$$35 = 25 + 30 - n(X \cap Y)$$

$$35 = 55 - n(X \cap Y)$$

$$\Rightarrow n(X \cap Y) = 20$$

2. Suppose that you have a universal set, U, with sets A and B. You know that $n(A') = 45$, $n(B) = 20$, $n(A \cup B) = 30$, and $n(A \cap B) = 5$. What is $n(U)$? (*Hint:* Draw a Venn Diagram as in problem 1.)

$$n(U) = 60$$