Probability NAMES:
Addition Rule

We will experiment to verify the formula $P(A \cup B) = P(A) + P(B) - P(A \cap B)$. Let's use the experiment of rolling a die and tossing a coin and the events A: "3 on die" and B: "H on coin".

You have been given a coin and a die. You are to roll the die and toss the coin fifty times. Count the number of times the events A, B, $A \cap B$, and $A \cup B$ occur.

Remember $A \cap B$ occurs when you get **both** a 3 on the die **and** an H on the coin at the same time. Also, $A \cup B$ occurs when you get one **or** the either (or possibly both).

Record your trials here. Use the notation "5H" to mean "5 on die and Heads on coin". Do at least fifty trials.

Count the elements that are in each event (the successes). Divide each number of successes by the total number of trials to get the probabilities needed here.

$P(A \cup B) =$	$P(A) =$	$P(B) =$	$P(A \cap B) =$

Does your experiment verify the formula above? Show that it does.