

Chapter 15: Probability Rules!**The General Addition Rule:**

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

Special Case: if A and B are mutually exclusive (disjoint), then $P(A \cup B) =$

The General Multiplication Rule:

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

Special Case: if A and B are independent, then $P(A \cap B) =$

Conditional Probability:

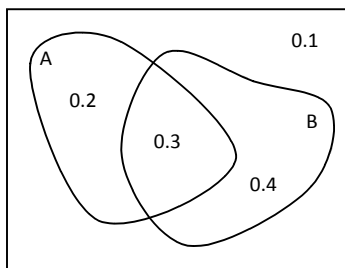
From the General Multiplication Rule, we can derive the formula for conditional probability (note that $P(A)$ cannot equal 0 since we know that A has occurred):

$$P(A|B) = \text{_____}$$

$$P(B|A) = \text{_____} = \text{_____}$$

Special Case: if A and B are independent, then $P(A|B) =$ _____ and $P(B|A) =$ _____

If the outcome of one event does not influence the probability of the other event, we say the two events are _____. If two events have no outcomes in common (they cannot occur simultaneously), we say the two events are _____ or _____. Disjoint events are _____ independent.



$$P(A) =$$

$$P(B) =$$

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

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

$$P(A|B) =$$

$$P(B|A) =$$

Are events A and B mutually exclusive? How can you tell?

Are events A and B independent? How can you tell?