

		Preference for Location		
		Hotel	Rec Center	Total
Preference for Band	Hip-Hop	73	80	
	Classic Rock	55	92	
Total				

Suppose you pick a student at random from this class. Find each of the following probabilities.

- $P(\text{prefers hotel})$
- $P(\text{prefers hip-hop band})$
- $P(\text{prefers hotel and prefers hip-hop band})$
- $P(\text{prefers hotel or prefers hip-hop})$
- $P(\text{prefers hotel} | \text{prefers hip-hop band})$
- $P(\text{prefers hip-hop band} | \text{prefers hotel})$

3. Recall that events A and B are independent if knowing whether one of the events occurs does not change the probability that the other event occurs.

- Using the data from problem 1, suppose you pick a student at random. Find $P(\text{wearing sneakers} | \text{is a girl})$. How does this compare to $P(\text{wearing sneakers})$?

$$P(\text{Sneakers} | \text{Girl}) = \frac{8}{13} \quad P(\text{Sneakers}) = \frac{20}{30}$$

- Are the events *wearing sneakers* and *is a girl* independent? Why or why not?

No, added condition of Girl probability changed!

Conditional Prob

$$P(A|B)$$