

Probability of Independent and Dependent Events

- To find the probability of _____ events occurring together, you have to decide whether one event occurring _____ the other event.
- When the occurrence of one event affects how a second event can occur, the events are _____ events. Otherwise, the events are _____ events.

Are the following events Dependent or Independent?

Pick a card from a deck and roll a single die.	Dependent	or	Independent
Pick a card from a deck, replace it, then pick another.	Dependent	or	Independent
Pick two cards from a deck.	Dependent	or	Independent
Roll two dice.	Dependent	or	Independent

Probability of A and B

If A and B are *independent* events, then $P(A \text{ and } B) =$ _____

What is the probability of picking a King and rolling a 5?

What is the probability of picking a King, replacing the card, then picking a red card?

What is the probability of rolling an even number one on die, then an odd number on the other?

Probability of A or B

If A and B are *independent* events, then $P(A \text{ or } B) =$ _____

What is the probability of picking a King or rolling a 5?

What is the probability of picking a King, replacing the card, or picking a red card?

What is the probability of rolling an even number or an odd number from two dice?

Dependent Events

- The probability that an event, B, will occur given that another event, A, has already occurred is called a _____ probability.
- Conditional probability exists when two events are _____.
- A _____ frequency table is a table that contains data from two different categories.

Company Profile: The table shows the number of employees by location and education level.

Company Employees	Ohio	Indiana
HS Diploma	1,156	4,505
College Degree	323	125
Graduate Degree	15	12

What is the probability that a person selected at random works in Ohio, given that they have only earned a high school diploma?

$$P(\text{Ohio} \mid \text{HS Diploma}) =$$

What is the probability that a person selected at random only earned a high school diploma, given that they work in Ohio?

$$P(\text{HS Diploma} \mid \text{Ohio}) =$$

What is the probability that a person selected at random earned a Graduate Degree, given that they work in Indiana?

$$P(\text{Graduate Degree} \mid \text{Indiana}) =$$

For any two events A and B with $P(A) \neq 0$,

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