

Dependent Events

#1-4 Determine if the event is **independent** or **dependent**.

1) tossing a coin and spinning a spinner
Outcome on coin does not affect spinner

IND

2) Anna draws a toothpick from a jar without replacing it, she draws a second toothpick

DEP

1 less toothpick

3) Joe draws a card from a deck of cards, replaces it, then draws a second card.

IND

Still same amount of cards

4) Choose a red jelly bean from a bag, eat it, and choose another red from the bag

DEP

1 less jelly bean

5) A bag contains 8 red marbles and 4 blue marbles. You draw a marble at random, do not replace it, and draw another marble at random.

DEP

$$P(\text{red, blue}) = P(r) \cdot P(b)$$

$$\frac{8}{12} \cdot \frac{4}{11} = \boxed{\frac{8}{33}}$$

~~X~~ r r r r 12
r r r r Total
b b b b

6) A bag of *Jelly Belly* jellybeans has 3 cherry, 1 orange and 2 watermelon jellybeans. Sean randomly selects a jellybean, eats it and randomly selects another jellybean.

DEP

$$P(\text{orange, watermelon}) = P(o) \cdot P(w)$$

$$\frac{1}{6} \cdot \frac{2}{5} = \boxed{\frac{1}{15}}$$


~~X~~ c c c 6
w w Total

7) A bowl of candy has 4 M&M's, 2 Kit Kats and 3 Snickers. Lisa randomly selects a piece of candy, does not replace it and randomly selects another.

DEP

$$P(\text{M&M's, M&M's}) = P(M) \cdot P(M)$$

$$\frac{4}{9} \cdot \frac{3}{8} = \boxed{\frac{1}{6}}$$

~~X~~ M M M
K K 9 Total
S S S

Review It!

8) What is the total number of outcomes for tossing a coin and spinning a spinner with five equal sections, 1-5? Use the Fundamental Counting Principle.

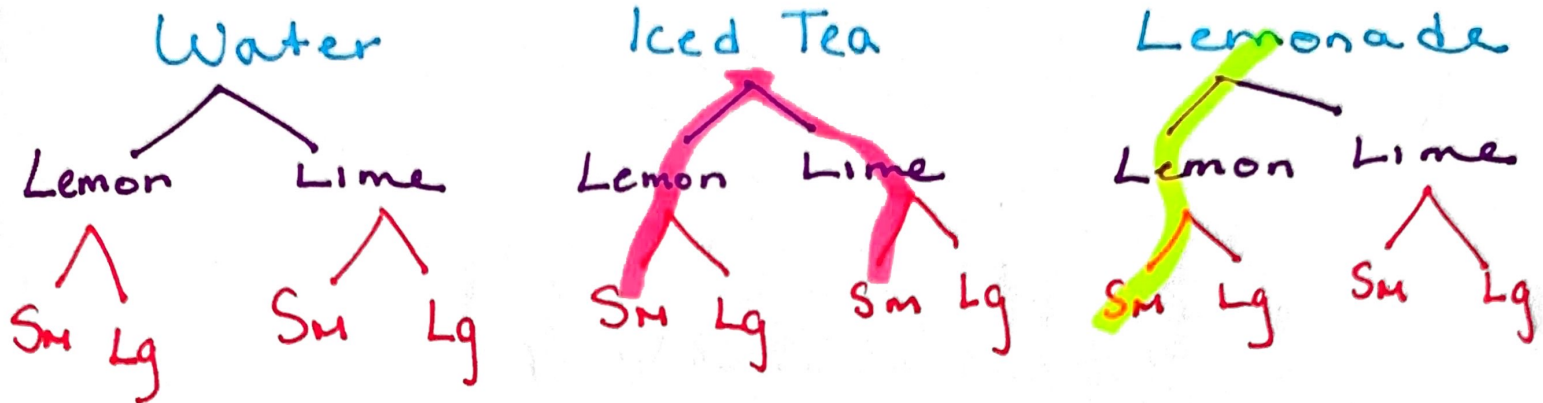
Toss Coin x Spinner

$$2 \times 5 = \boxed{10}$$

#9-13

At Abby's Snack Shop customers have a choice of three drinks water, iced tea or lemonade. They have a choice of a lemon or lime twist. They also have a choice of a small or large glass.

9) Create a tree diagram to see the possible outcomes.



10) List the sample space.

{ WLESm, WLELg, WLISM, WLILg, ILLSm, ILLLg, ILLISm,
 ILILg, LLLESm, LLELg, LLLISM, LLLILg }

11) How many possible outcomes are there? 12

12) P (lemonade, lemon twist, small) = 1/12

13) P (small iced tea) = 2/12

14) A bowl of candy has 4 M&M's, 2 Kit Kats and 3 Snickers. Lisa randomly selects a piece of candy, **replaces it** and randomly selects another. (Independent Event...look back at CW 9.7)

$$P(M\&M's, M\&M's) = P(M) \cdot P(M)$$

$$\frac{4}{9} \cdot \frac{4}{9} = \frac{16}{81}$$

M	M	M	M	
K	K			9
S	S	S		Total

★ Bowl does not change!
 Always 9 candies.