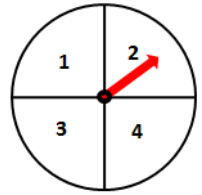


Do Now:

- a) If a coin is tossed 100 times, how many times would you expect it to land on heads?
- b) If a coin is tossed 30 times, how many times would you expect it to land on tails?
- c) If the spinner pictured to the right was spun 800 times, how many times would you expect it to land on the number 4?



Expected Probability - Predicting Outcomes

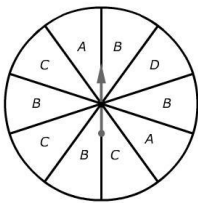
Expected Probability = $P(E) \bullet$ Number of Attempts
*Expected Probability can also be found using a **proportion***

Example: If a coin is tossed 40 times, how many times would you expect it to land on tails?

1st Method:

2nd Method:

- 1. The spinner below is spun 300 times. About how many times can we expect to land on the letter C?



- 2. The rules of a contest say that there is a 5% probability of winning a prize. If 400 people enter the contest, predict how many people will win.
- 3. The theoretical probability that a song by One Republic plays on your iPhone is 0.45. If there are 80 songs on your iPhone, how many of the songs are by One Republic?

Discussion/Investigation.

On Mondays, the school cafeteria offers a choice of a chicken sandwich or a vegetarian sandwich and an orange juice, milk or soda for a drink. How many different meals can you choose from at the cafeteria assuming you get one sandwich and one drink?

Is there an easier way to figure out the total number of outcomes?

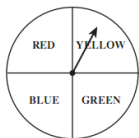
Fundamental Counting Principle

Event **M** has m possible outcomes. Event **N** has n possible outcomes.
The total number of outcomes of event **M** followed by event **N** is $m \times n$.

Examples: Find the total number of outcomes.



1. Flip a coin and roll a die



2. Spin a spinner and roll a die



3. Roll two six-sided dice

4. Samantha is buying a new car. She wants either a convertible or an SUV. Both types of cars are available in navy, white, or red and with automatic *or* standard transmission. How many different options does Samantha have to choose from?

5. If a man has five different shirts, four different neckties, and three different sport jackets, how many different possible outfits consisting of a shirt, tie, and sports jacket are possible?

6. A type of chair comes in 4 styles, 4 colors, and 3 different upholsteries. How many different types of chairs can be made?

7. Debbie orders from a lunch menu that has five appetizers, three soups, seven entrees and four desserts. How many different meals consisting of either an appetizer *or* a soup, one entrée and one dessert can Debbie order?