Algebra 2

8-01 Sample Spaces and Probability

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Sample Spaces

- The set of all possible _____ in a probability experiment
  - Probability Experiment: _____
  - Sample Space: _____
  - Event (wanted outcome): _____
  - Outcome (what happened): _____

Find the number of possible outcomes and then list all the possible outcomes if you flip 4 coins.
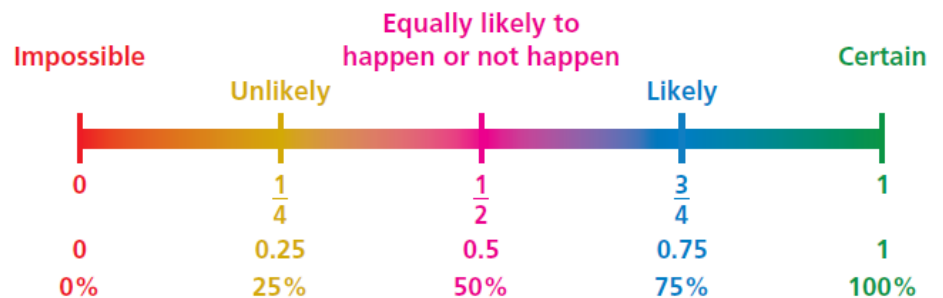
Find the number of possible outcomes and then list all the possible outcomes if you flip a coin and draw a marble at random from a bag with 2 purple marbles and 1 white marble.

Probability

- A number between _____ and _____ to indicate how likely something is to _____
- 0 = _____ happen
- 1 = _____ happens

| Impossible	Unlikely	Equally likely to happen or not happen	Likely	Certain
0	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1
0	0.25	0.5	0.75	1
0%	25%	50%	75%	100%

Theoretical Probability

$$P(A) = \frac{\text{Number of ways A happens}}{\text{Total number of possible outcomes}}$$

You flip a coin four times. What is the probability that the coins show heads exactly three times?

A game show airs 5 days a week. Each day a prize is randomly placed behind one of two doors. What is the probability that exactly two contestants guess the correct door during a week?

Two D6 are rolled. (a) What is the probability of rolling a sum that is *not* 2?
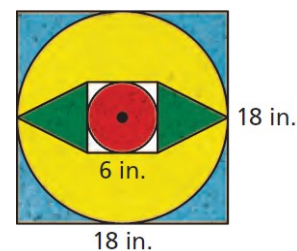(b) The sum is less than or equal to 10?
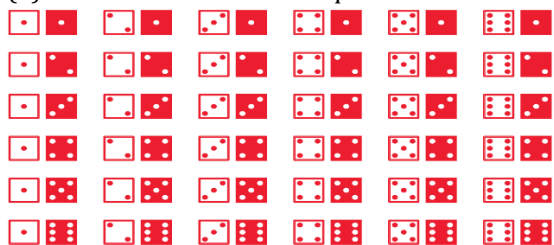
A student loses his earbuds while walking home from school. The earbuds are equally likely to be at any point along the path shown. What is the probability that the earbuds are on Cherry Street?
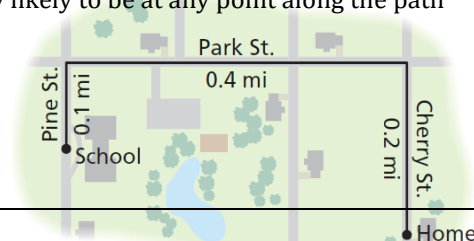
Find the probability of randomly picking a point in the yellow area.

18 in.

6 in.

18 in.

Experimental Probability

- Probability based on the results of an _____

Each section of the spinner shown has the same area. The spinner is spun 50 times. The table shows the results. For which color is the experimental probability of stopping on the color the same as the theoretical probability?

Spinner Results				
red	green	blue	yellow	purple
5	20	3	10	12

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408 #1, 2, 3, 5, 7, 8, 9, 11, 12, 13, 15, 17, 19, 23, 25, 29, 33, 35, 37, 39 = 20