

*May 5, 2015* <sup>5<sup>th</sup></sup>  
<sup>6<sup>th</sup></sup>  
*Get out your homework*



*Majestic*

## 5/5 Probability

Which of the following spinners would you rather use for playing a game with your friends? Explain.



The one on the right has an equal **likelihood** of getting any answer. It's more **fair**.

## Probability

The **probability** of an event is a number that measures the likelihood that the event will occur. Probabilities are between 0 and 1, including 0 and 1. The diagram relates likelihoods (above the diagram) and probabilities (below the diagram).



Work with a partner and see if you can come up with an example of each of the 5 possibilities shown here.

### Finding the Probability of an Event

When all possible outcomes are equally likely, the probability of an event is the ratio of the number of favorable outcomes to the number of possible outcomes. The probability of an event is written as  $P(\text{event})$ .

$$P(\text{event}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$



$$P(2) = \frac{1}{6}$$

$$P(\text{even}) = \frac{3}{6} = \frac{1}{2}$$

$$P(\text{skunk or zebra}) = \frac{2}{6} = \frac{1}{3}$$

You roll the number cube. What is the probability of rolling an odd number?



$$P(\text{event}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$

$$P(\text{odd}) = \frac{3}{6}$$

There are 3 odd numbers (1, 3, and 5).

There is a total of 6 numbers.

$$= \frac{1}{2} \quad \text{Simplify.}$$

∴ The probability of rolling an odd number is  $\frac{1}{2}$ , or 50%.

Find the following probabilities:

$$P(3) = \frac{1}{6}$$

$$P(1 \text{ or } 2) = \frac{2}{6} = \frac{1}{3}$$

$$P(\text{not } 3) = \frac{5}{6}$$

$$P(\text{above } 3) = \frac{3}{6} = \frac{1}{2}$$

$$P(\text{even}) = \frac{3}{6} = \frac{1}{2}$$

$$P(\text{less than } 1) = 0$$



The probability that you randomly draw a short straw from a group of 40 straws is  $\frac{3}{20}$ . How many are short straws?

(A) 4

(B) 6

(C) 15

(D) 34

$$\frac{3 \cdot 2}{20 \cdot 2} = \frac{n}{40}$$
$$6 = n$$



The probability that you randomly draw a short straw from a group of 75 straws is  $\frac{1}{15}$ . How many are short straws?

$$\frac{1 \cdot 5}{15 \cdot 5} = \frac{n}{75}$$
$$5 = n$$

Homework

Due