

## ACT Study Modules

TOPIC: Probability

[Khan Academy Link](#): This video from the beginning to 4:50 demonstrates simple probability.

Probability is the **likelihood of something happening**. Probability is often used in situations involving flipping coins, rolling die, drawing cards, or picking out letter tiles.

Steps to determine simple probability:

Step 1: Determine the total amount of possible outcomes.

Step 2: Determine the total amount of favorable outcomes

Step 3:  $Probability = \frac{\text{Favorable Outcomes}}{\text{Possible Outcomes}}$

Sample Problem: Suppose you roll a die. What is the probability of it landing on a 4?

How many ways can a die land? 6

How many ways can a die land on a 4? 1

The probability of rolling a 4 is  $P(4) = \frac{1}{6}$

What is the probability of landing on a number less than 5?

How many ways can a die land? 6

How many ways can a die land on a number less than 5? 4

The probability of rolling a 4 is  $P(\text{number less than 5}) = \frac{4}{6} = \frac{2}{3}$

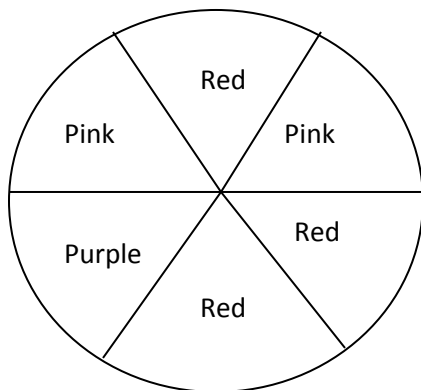
**Items:** Suppose you have a pocket full of marbles. You have 6 green, 4 red, 11 blue, and 3 yellow.

- a) Find the probability of drawing a red marble  
 $P(\text{red}) =$
  
- b) Find the probability of drawing a yellow marble  
 $P(\text{yellow}) =$
  
- c) Find the probability of drawing a blue marble  
 $P(\text{blue}) =$

**Items:** Suppose you have a drawer full of socks. You have 9 black socks, 12 white socks, 2 gray socks, and 3 brown socks.

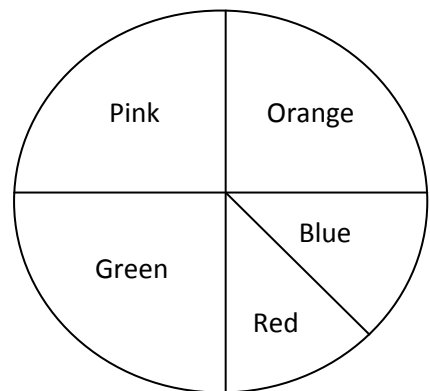
- a) Find the probability of picking a white sock  
 $P(\text{white}) =$
  
- b) Find the probability of picking a brown sock  
 $P(\text{brown}) =$
  
- c) Find the probability of picking a gray sock  
 $P(\text{gray}) =$

**Spinners:** Suppose you are using the following spinner



- a) Find the probability of landing on purple  
 $P(\text{purple}) =$
  
- b) Find the probability of landing on red  
 $P(\text{red}) =$
  
- c) Find the probability of landing on pink  
 $P(\text{pink}) =$
  
- d) Find the probability of landing on blue  
 $P(\text{blue}) =$

**Spinners:** Suppose you are using the following spinner



- a) Find the probability of landing on orange  
 $P(\text{orange}) =$
  
- b) Find the probability of landing on red  
 $P(\text{red}) =$
  
- c) Find the probability of landing on pink  
 $P(\text{pink}) =$
  
- d) Find the probability of landing on blue  
 $P(\text{blue}) =$