# Day 7_Theoretical Probability

Theoretical Probability

click rectangles

**Let's apply this definition to an example.**

E.g., 1. Determine the probability of drawing a heart, club, *or* spade from a 52-card deck of cards.

P(heart, club, *or* spade)

$= \frac{\text{number of successful outcomes}}{\text{total number of possible outcomes}}$

$= \frac{\text{number of hearts, clubs, spades}}{\text{total number of cards}}$

$= \frac{13 + 13 + 13}{52}$

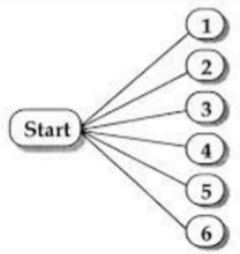
$= \frac{39}{52}$

move shade
click ?

**Many probability problems relate to dice games.**

E.g., 2. How many possible outcomes are there when rolling a pair of dice?

Drag




Note:

The chance of each of these coming up is $\frac{1}{6} = .167 = 16.7\%$

**Let's apply this information to solving a dice problem.**

E.g., 3. What is the probability of rolling a sum of 8 or greater on the roll of a pair of dice?

You might find the following graphics helpful with this type of problem:

Pull

Pull

Next

# Day 7_Theoretical Probability

E.g., 3. What is the probability of rolling a sum of 8 or greater on the roll of a pair of dice?

Pull

Pull tab, then click ?

**What about the probability of things *not* occurring?**

The *complement* of an event is...

click on rectangles

**Let's solve a problem using the complement of an event.**

E.g., 4. Determine the probability of not rolling doubles using a pair of dice.

Calculation

P(non-doubles)

$= 1 - P(\text{doubles})$

$= 1 - \frac{6}{36}$

$= \frac{36}{36} - \frac{6}{36}$

$= \frac{30}{36}$

$= \frac{5}{6}$

Pull

Pull tab, then reveal calculation

**Next...Your Next Opportunity for Learning**

-Complete the follow-up problem set

- handout (paper & pencil)
- copy from Onenote "Content" folder into your own assignment folder