Precalculus

10-08 Probability

Probability

- Number from _____ to _____ indicating how _____ something is to happen.
- 0 = _____ happens
- 1 = _____ happens

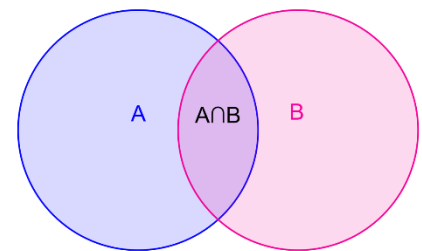$$P(A) = \frac{favorable\ outcomes}{total\ outcomes}$$

A box contains 3 red marbles, 5 black marbles, and 2 yellow marbles. If a marble is selected at random, what is the probability of choosing yellow?

2 dice are rolled, what is the probability that the sum is 8?

Compound Events

- _____ event with _____ accepted outcomes
$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$
- If $P(A \cap B) = 0$, then called _____ exclusive

You draw one card from a standard 52-card deck. What is the probability of drawing a heart or red?

Multiple Events

- _____ events with _____ outcomes
- Independent – Event A _____ affect event B
$$P(A\ and\ B) = P(A) \cdot P(B)$$
- Dependent – Event A _____ affect event B
$$P(A\ and\ B) = P(A) \cdot P(B|A)$$
  o where $P(B|A)$ is the probability that B occurs given that A already occured

You draw 2 cards from a standard 52-card deck. What is the probability you draw a heart and a red? (a) with replacement (b) without replacement

Complement

- _____

$$P(\overline{A}) = 1 - P(A)$$

- _____ P(n ≥ 1) is easier with the complement _____ $P(0)$