

Mutually Exclusive

$$P(A \cap B) = 0$$

$$P(A \cup B) = P(A) + P(B)$$

Independent

$$P(A \cap B) = P(A) \times P(B)$$

$$P(A) = P(A|B)$$

Events A and B are independent and $P(A) = \frac{1}{3}$ and $P(B) = \frac{1}{5}$

Find

a. $P(A \cap B)$

b. $P(A \cap B')$

c. $P(A' \cap B')$

Addition Rule

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

A and B are two events.

$$P(A) = 0.6, P(B) = 0.7 \text{ and } P(A \cup B) = 0.9$$

Find

- a. $P(A \cap B)$
- b. $P(A')$
- c. $P(A' \cup B)$
- d. $P(A' \cap B)$

Multiplication Rule

$$P(C \cap D) = P(C|D) \times P(D)$$

$$P(C|D) = \frac{P(C \cap D)}{P(D)}$$

C and D are two events such that $P(C) = 0.2$, $P(D) = 0.6$ and $P(C|D) = 0.3$

Find

a. $P(D|C)$

b. $P(C' \cap D')$

c. $P(C' \cap D)$

A and B are two events such that $P(A|B) = 0.1$, $P(A|B') = 0.6$ and $P(B) = 0.3$

Find

- a.* $P(A \cap B)$
- b.* $P(A \cap B')$
- c.* $P(A)$
- d.* $P(B|A)$

- e.* $P(B|A')$