

STA2023 Test 2 Formulas

Addition rule (mutually exclusive events):

$$P(A \text{ or } B) = P(A) + P(B)$$

Addition rule (events not mutually exclusive):

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

Multiplication rule (independent events):

$$P(A \text{ and } B) = P(A) \cdot P(B)$$

Multiplication rule (dependent events):

$$P(A \text{ and } B) = P(A) \cdot P(B | A)$$

$$\text{Conditional probability: } P(B|A) = \frac{P(A \text{ and } B)}{P(A)}$$

$$\text{Or equivalently: } P(A|B) = \frac{P(A \text{ and } B)}{P(B)}$$

Complementary events: $P(\bar{E}) = 1 - P(E)$

P of at least one _____ = 1 - P of none of _____

Deck of cards

A deck of cards consists of 4 suits, 13 cards each for a total of 52 cards. The four suits are: Spades, Hearts, Diamonds, and Clubs. Each suit contains an A (Ace), numbers from 2 to 10, and three face cards: J, The Jack; Q, the Queen and K, the King.

