Formulas from Probability

Theoretical probability of an event (p. 698)	When all outcomes are equally likely, the theoretical probability that an event A will occur is: $P(A) = \frac{\text{Number of outcomes in } A}{\text{Total number of outcomes}}$
Odds in favor of an event (p. 699)	When all outcomes are equally likely, the odds in favor of an event A are: $\frac{\text{Number of outcomes in } A}{\text{Number of outcomes not in } A}$
Odds against an event (p. 699)	When all outcomes are equally likely, the odds against an event A are: $\frac{\text{Number of outcomes not in } A}{\text{Number of outcomes in } A}$
Experimental probability of an event (p. 700)	When an experiment is performed that consists of a certain number of trials, the experimental probability of an event A is given by: $P(A) = \frac{\text{Number of trials where } A \text{ occurs}}{\text{Total number of trials}}$
Probability of compound events (p. 707)	If A and B are any two events, then the probability of A or B is: $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ If A and B are disjoint events, then the probability of A or B is: $P(A \text{ or } B) = P(A) + P(B)$
Probability of the complement of an event (p. 709)	The probability of the complement of event A, denoted $\overline{A}$, is: $P(\overline{A}) = 1 - P(A)$
Probability of independent events (p. 717)	If A and B are independent, the probability that both A and B occur is: $P(A \text{ and } B) = P(A) \cdot P(B)$
Probability of dependent events (p. 718)	If A and B are dependent, the probability that both A and B occur is: $P(A \text{ and } B) = P(A) \cdot P(B \mid A)$
Binomial probabilities (p. 725)	For a binomial experiment consisting of n trials where the probability of success on each trial is p, the probability of exactly k successes is: $P(k \text{ successes}) = {}_nC_k p^k (1-p)^{n-k}$

Formulas from Statistics

Mean of a data set (p. 744)	$\overline{x} = \frac{x_1 + x_2 + \cdots + x_n}{n}$ where $\overline{x}$ (read "x-bar") is the mean of the data $x_1, x_2, \ldots, x_n$
Standard deviation of a data set (p. 745)	$\sigma = \sqrt{\frac{(x_1 - \overline{x})^2 + (x_2 - \overline{x})^2 + \ldots + (x_n - \overline{x})^2}{n}}$ where σ (read "sigma") is the standard deviation of the data $x_1, x_2, \ldots, x_n$
Areas under a normal curve (p. 757)	A normal distribution with mean $\overline{x}$ and standard deviation σ has these properties: • The total area under the related normal curve is 1. • About 68% of the area lies within 1 standard deviation of the mean. • About 95% of the area lies within 2 standard deviations of the mean. • About 99.7% of the area lies within 3 standard deviations of the mean.
***z*-score (p. 758)**	$z = \frac{x - \overline{x}}{\sigma}$ where x is a data value, $\overline{x}$ is the mean, and σ is the standard deviation

TABLES