1. The Bayesian interpretation of probability is a subjective interpretation that views probability as a measure of the degree of belief or uncertainty in a hypothesis, given the available evidence and prior knowledge.

2. The probability of the union of two events A and B is given by the equation P(A or B) = P(A) + P(B) - P(A and B), where P(A and B) is the probability of the intersection of A and B.

3. Joint probability is the probability of two or more events occurring together. The formula for joint probability is P(A and B) = P(A) \* P(B|A), where P(B|A) is the conditional probability of event B given that event A has occurred.

4. The chain rule of probability is a way to calculate the joint probability of multiple events by breaking it down into conditional probabilities. The formula is P(A and B and C) = P(A) \* P(B|A) \* P(C|A and B).

5. Conditional probability is the probability of an event occurring given that another event has already occurred. The formula for conditional probability is P(A|B) = P(A and B) / P(B), where P(A and B) is the joint probability of A and B.

6. Continuous random variables are variables that can take on any value within a continuous range, such as height or weight. They are described by a probability density function (PDF) rather than a probability mass function (PMF).

7. Bernoulli distributions are a type of discrete probability distribution that models the probability of a single binary outcome, such as a coin flip. The formula for the Bernoulli distribution is P(X=x) = p^x \* (1-p)^(1-x), where p is the probability of success and x is the outcome (either 0 or 1).

8. The binomial distribution is a discrete probability distribution that models the probability of a certain number of successes in a fixed number of independent trials. The formula for the binomial distribution is P(X=k) = (n choose k) \* p^k \* (1-p)^(n-k), where n is the number of trials, k is the number of successes, p is the probability of success, and (n choose k) is the binomial coefficient.

9. The Poisson distribution is a discrete probability distribution that models the probability of a certain number of rare events occurring within a fixed time or space interval. The formula for the Poisson distribution is P(X=k) = (e^-λ \* λ^k) / k!, where λ is the average rate of events occurring and k is the number of events.

10. Covariance is a measure of the joint variability between two random variables. It measures how much two variables change together. The formula for covariance is Cov(X,Y) = E[(X-E[X])(Y-E[Y])].

11. Correlation is a measure of the linear relationship between two random variables. It measures the strength and direction of the relationship. The formula for correlation is r = Cov(X,Y) / (σ\_X \* σ\_Y), where σ\_X and σ\_Y are the standard deviations of X and Y, respectively.

12. Sampling with replacement is a method of sampling where each item in a population has an equal chance of being selected, and once an item is selected, it is replaced before the next selection. For example, randomly selecting a card from a deck, recording the value, and then putting the card back before selecting another card.

13. Sampling without replacement is a method of sampling where each item in a population has an equal chance of being selected, but once an item is selected, it is not replaced before the next selection. For example, randomly selecting two cards from a deck without replacement