

Probability Distributions Quiz Answer Key PDF

Probability Distributions Quiz Answer Key PDF

Disclaimer: The probability distributions quiz answer key pdf was generated with the help of StudyBlaze AI. Please be aware that AI can make mistakes. Please consult your teacher if you're unsure about your solution or think there might have been a mistake. Or reach out directly to the StudyBlaze team at max@studyblaze.io.

Which of the following is a discrete probability distribution?

- A. Normal Distribution
- C. Binomial Distribution ✓**
- D. Uniform Distribution
- C. Exponential Distribution

Provide an example of a situation where the geometric distribution would be applicable.

- A. Number of coin flips needed to get the first head. ✓**
- C. Number of successes in a fixed number of trials.
- D. Time until the first event occurs.
- C. Number of customers arriving in an hour.

Discuss the significance of skewness and kurtosis in understanding the shape of a probability distribution.

- A. Skewness measures the asymmetry of a distribution. ✓**
- C. Kurtosis measures the 'tailedness.' ✓**
- D. Both are irrelevant in probability distributions.
- C. They only apply to normal distributions.

Which distribution is characterized by a bell-shaped curve?

- A. Poisson Distribution
- C. Geometric Distribution
- D. Exponential Distribution
- C. Normal Distribution ✓**

What is the mean of a standard normal distribution?

A. 0 ✓

C. 0.5

D. -1

C. 1

What is the Law of Large Numbers, and how does it relate to probability distributions?

A. As the number of trials increases, the sample mean converges to the expected value. ✓

C. It only applies to normal distributions.

D. It requires a sample size of at least 30.

C. It applies to discrete distributions only.

How can the moment generating function be used to define a probability distribution?

A. It provides a way to derive all moments of a distribution. ✓

C. It only applies to discrete distributions.

D. It is used to calculate probabilities directly.

C. It can only be used for normal distributions.

Which of the following are properties of the binomial distribution? (Select all that apply)

A. Fixed number of trials ✓

C. Each trial is independent ✓

D. Only two possible outcomes ✓

C. Events occur continuously over time

Which of the following are characteristics of a normal distribution? (Select all that apply)

A. Symmetrical ✓

C. Bell-shaped ✓

D. Defined by mean and variance ✓

C. Discrete

Which distributions are considered continuous? (Select all that apply)

A. Normal Distribution ✓

C. Exponential Distribution ✓

- D. Binomial Distribution
- C. Poisson Distribution

Which theorem states that the sampling distribution of the sample mean approaches a normal distribution as the sample size increases?

- A. Law of Large Numbers
- C. Bayes' Theorem
- D. Chebyshev's Inequality
- C. Central Limit Theorem ✓**

What is the variance of a standard normal distribution?

- A. 0
- C. 0.5
- D. 2
- C. 1 ✓**

Explain the difference between a discrete and a continuous probability distribution.

- A. Discrete distributions deal with countable outcomes. ✓**
- C. Continuous distributions deal with uncountable outcomes. ✓**
- D. Discrete distributions can take any value.
- C. Continuous distributions can only take integer values.

Describe a real-world scenario where a Poisson distribution might be used.

- A. Model the number of customer arrivals at a bank. ✓**
- C. Model the height of individuals.
- D. Model the time taken to complete a task.
- C. Model the weight of individuals.

In a Poisson distribution, what parameter represents the average number of events in a given interval?

- A. Mean
- C. Sigma (σ)
- D. Mu (μ)

C. Lambda (λ) ✓

Which of the following is a property of the exponential distribution?

- A. Symmetry
- C. Skewness
- D. Uniformity
- C. Memorylessness** ✓

Which distributions can be used to model waiting times? (Select all that apply)

- A. Exponential Distribution** ✓
- C. Geometric Distribution** ✓
- D. Poisson Distribution
- C. Normal Distribution

What are the parameters of a normal distribution? (Select all that apply)

- A. Mean (μ)** ✓
- C. Variance (σ^2)** ✓
- D. Lambda (λ)
- C. Probability of success (P)

Which distribution is used to model the time until the first success in a series of Bernoulli trials?

- A. Binomial Distribution
- C. Exponential Distribution
- D. Uniform Distribution
- C. Geometric Distribution** ✓

Which of the following statements about the Central Limit Theorem are true? (Select all that apply)

- A. It applies to any distribution as the sample size increases.** ✓
- C. It requires a sample size of at least 30.
- D. It states that the sample mean will be normally distributed.** ✓
- C. It only applies to normal distributions.