

Lesson 3.1

10/10 points (100%)

Quiz, 10 questions

✓ **Congratulations! You passed!**

[Next Item](#)

1 / 1
points

1.

When using random variable notation, big X denotes _____.



a random variable



Correct



a conditional probability



distributed as



a realization of a random variable



the expectation of a random variable



approximately equal to



1 / 1
points

2.

When using random variable notation, little x denotes _____.



a random variable



a conditional probability



distributed as

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a realization of a random variable



Correct

It is a possible value the random variable can take

10/10 points (100%)



the expectation of a random variable



approximately equal to



1 / 1
points

3.

When using random variable notation, $X \sim$ denotes _____.



a random variable



a conditional probability



distributed as



Correct



a realization of a random variable



the expectation of a random variable



approximately equal to



1 / 1
points

4. What is the value of $f(x) = -5I_{\{x>2\}}(x) + xI_{\{x<-1\}}(x)$ when $x = 3$?

-5



Correct Response

Only the first term is evaluated as non-zero.

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1 / 1
points

5. What is the value of $f(x) = -5I_{\{x>2\}}(x) + xI_{\{x<-1\}}(x)$ when $x = 0$?

Correct Response

All indicator functions evaluate to zero.

1 / 1
points

6.

Which of the following scenarios could we appropriately model using a Bernoulli random variable?



Predicting whether your hockey team wins its next game (tie counts as a loss)

Correct

Whether they win is a binary outcome which can only take on values $\{0, 1\}$.



Predicting the weight of a typical hockey player



Predicting the number of wins in a series of three games against a single opponent (ties count as losses)



Predicting the number of goals scored in a hockey match

1 / 1
points

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7.

Calculate the expected value of the following random variable: X takes on values $\{0, 1, 2, 3\}$ with corresponding probabilities $\{0.5, 0.2, 0.2, 0.1\}$. **10/10 points (100%)**
Round your answer to one decimal place.

0.9

Correct Response

This is $0(.5) + 1(.2) + 2(.2) + 3(.1)$.



1 / 1
points

8.

Which of the following scenarios could we appropriately model using a binomial random variable (with $n > 1$)?



Predicting whether your hockey team wins its next game (tie counts as a loss)



Predicting the weight of a typical hockey player



Predicting the number of wins in a series of three games against a single opponent (ties count as losses)

Correct

The binomial model assumes a fixed number of independent trials, each with the same probability of success.



Predicting the number of goals scored in a hockey match



1 / 1
points

9.

Suppose $X \sim \text{Binomial}(3, 0.2)$. Calculate $P(X = 0)$. Round your answer to two decimal places.

0.51

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Correct Response

This is $P(X = 0) = \binom{3}{0} 0.2^0 0.8^3$.

10/10 points (100%)



1 / 1
points

10.

Suppose $X \sim \text{Binomial}(3, 0.2)$. Calculate $P(X \leq 2)$. Round your answer to two decimal places.

0.99

Correct Response

This is $P(X = 0) + P(X = 1) + P(X = 2)$

$$= \binom{3}{0} 0.2^0 0.8^3 + \binom{3}{1} 0.2^1 0.8^2 + \binom{3}{2} 0.2^2 0.8^1$$

$$= 1 - P(X = 3)$$

