

# **Random Variables and Probability Distributions**

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1. Are each of these variables discrete or continuous?

(Discrete, Continuous)

- The number of right answers in your statistics exam - (-----)
  - Distance between your house and the nearest school - (-----)
  - Number of stocks owned - (-----)
  - Time taken to get to work in the morning - (-----)
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2. Are the following statements true or false?

- The probability distribution for a discrete random variable X gives the probability that X takes a value less than or equal to the value x - (True/False)
- The following is a valid probability distribution for X is - (True/False)

X	P(X)
1	0.2
2	0.3
3	0.2
4	0.4

- The probability distribution of a discrete random variable can be expressed as a graph. - (True/False)
  - The CDF of a discrete random variable is a list of probabilities. - (True/False)
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3. Let X be the value obtained from rolling a die. (X takes values 1,2,3,4,5 or 6 with equal probability.) The mean and variance of X are, respectively,

- 3, 2.9
- 3.5, 2.9
- 3.5, 1.7
- 3.5, 2.7

4. Which of the following are binomial random variables?

- You roll 6 dice. X is the number of dice taking values greater than 4. - (True/False)
  - A die is rolled until a 6 comes up. Let X be the random variable denoting the number of times you have to roll the die. - (True/False)
  - The number of defective computers from 500 randomly selected computers where the defective rate is 1% - (True/False)
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5. If a life insurance salesman sells on average 3 life insurance policies per week, assuming that there are 5 working days per week, the probability that in a given day he will sell one policy is:

- Not enough information to compute
  - 0.33
  - 0.1
  - 0.15
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