

Math 10B with Professor Stankova

Quiz 14; Tuesday, 5/7/2019

Section #206; Time: 9:30 AM

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Name: \_\_\_\_\_

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Circle True or False or leave blank. (1 point for correct answer,  $-1$  for incorrect answer, 0 if left blank)

1. True    False    It is possible to have a geometric random variable  $X$  have expected value 5 and variance 5 as well.
2. True    False    The number of ways to place  $b$  balls into  $u$  boxes with  $b > u$  is 0 if the boxes are indistinguishable and we want it to be injective but sometimes more than 0 if the boxes are distinguishable (still injective).

Show your work and justify your answers. Please circle or box your final answer.

3. (10 points) I have a bag with 5 coins and 4 are fair while one has both sides tails.
  - (a) (5 points) Suppose you randomly reach in the bag and grab a coin and flip it. Suppose that you flip tails. What is the probability you have a fair coin?
  
  
  
  
  
  
  
  
  
  
  - (b) (5 points) Now suppose you flip it again and get tails again (total of two tails in a row). What is the probability it is fair now?