Math 10B with Professor Stankova

Quiz 13; Tuesday, 5/7/2019Section #203; Time: 11 AM

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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?