# Math 10B with Professor Stankova 

Quiz 13; Tuesday, 5/7/2019
Section \#203; Time: 11 AM
GSI name: Roy Zhao
Name:

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?

