Math 10B with Professor Stankova
Quiz 8; Tuesday, 3/19/2019
Section #206; Time: 9:30 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 $\bar{X} = \mu$ because both are equal to the average value.

2. True False The CLT tells us that $\bar{X}$ is normally distributed.

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

3. (10 points) Suppose that each student has a 10% chance of going to office hours and this probability is independent of whether other students go.

   (a) (2 points) Choose a random student. Let X be the random variable that outputs 1 if they goes to office hours and 0 otherwise. What is $E[X]$ and $SE(X)$? (Simplify your answer)

   (b) (4 points) What is the probability that in a section of 25 students, at most $4\%(= \frac{1}{25})$ of them go to office hours? (You do not need to simplify your answer)

   (c) (4 points) Use the CLT to approximate the probability that at most 4% of the section of 25 students go to office hours. (Hint: $z(1) = 0.3413$)