

**Quiz Four**

**Lecture:**  8:30      **SI:**  Alex       Ashley  
 9:30       Matt       Avni  
 Jason       Becca

**No notes. Calculators are allowed.**

Write clearly and explain your reasoning.

- 1 (8 points) Suppose a car rental agency rents cars for \$30 per day. The cars cost the agency \$20 per day. Suppose that the agency has records that indicate a typical day has 9 to 11 customers, with probabilities according to the following table:

Number of Customers	9	10	11
Probability	0.4	0.4	0.2

How many cars should the rental agency have on hand in order to maximize their profits?

2 (7 points) A large urn contains 25 balls: 10 are colored blue and 15 are colored yellow. A ball is drawn, its color is noted, then the ball is replaced. This is done 3 times.

(a) (4 points) Let  $X$  be the random variable representing the number of yellow balls picked in the three drawings. List the values of this random variable together with the probability distribution.

(b) (3 points) Find  $E(X)$ , the expected value of the random variable you found in part (a).

3 (5 points) A wallet contains seven bills: three \$1 bills, a \$5 bill, two \$10 bills, and a \$20 bill. Suppose we take out one of the bills randomly. What is the expected value of this bill?