

Quiz Four

Lecture: 8:30 **SI:** Alex Ashley
 9:30 Avni Becca
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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 \$15 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	0.3	0.3	0.4

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: 20 are colored blue and 5 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: two \$1 bills, two \$5 bills, a \$10 bill, and two \$20 bills. Suppose we take out one of the bills randomly. What is the expected value of this bill?