Your solutions must be consistent with class notes & resources.

Be Neat, Organized, and No Work $\Leftrightarrow$ No Points

Submit as one file, portrait style, pages in order, and same format.

Full TI Command Required as shown in class lecture.

1. **Consider a binomial probability distribution with $n = 40$, $p = 0.8$, and x be the number of successes,**

   (a) **(2 points) Find $P(x = 30)$ using the formula.**

   (a) _____

   (b) **(2 points) Find $P(x \leq 35)$**

   (b) _____

   (c) **(2 points) Find $P(x \geq 25)$**

   (c) _____

   (d) **(2 points) Find its mean and standard deviation. Round to one decimal place.**

   (d) _____

   (e) **(2 points) Use the rounded answers to find its usual range.**

   (e) _____

2. A student takes a multiple-choice test with 10 questions and guesses randomly at each answer. Each question has 5 choices with only one correct choice.

(a) (**2 points**) Find the probability that he/she gets exactly 3 correct answers using the formula.

(a) _____

(b) (**2 points**) Find the probability that he/she gets fewer than 3 correct answers.

(b) _____

(c) (**2 points**) Find the probability that he/she gets at least 3 correct answers.

(c) _____

(d) (**2 points**) Find the mean number of correct answers he/she can get. Round to a whole number.

(d) _____

(e) (**2 points**) Find the standard deviation for the number of correct answers that he/she can get. Round to a whole number.

(e) _____

(f) (**2 points**) Use the rounded answers from above to find the usual range for number of correct answers he/she can get.

(f) _____

3. The probability that a passenger with ticket show up for a flight is 0.9. An airline sells 142 tickets for a flight that has 125 seats.

(a) **(2 points)** Find the probability that exactly 125 passengers with tickets show up for this flight.

(a) —————

(b) **(2 points)** Find the probability that fewer than 125 passengers with tickets show up for this flight.

(b) —————

(c) **(2 points)** Find the probability that more than 125 passengers with tickets show up for this flight.

(c) —————

(d) **(2 points)** Find the probability that the number of passengers with tickets show up for this flight is from 120 to 125.

(d) —————

(e) **(2 points)** Find the mean number of passengers with ticket that show up for this flight. Round to a whole number.

(e) —————

(f) **(2 points)** Find the standard deviation for the number of passengers with ticket that show up for this flight. Round to a whole number.

(f) —————

(g) **(2 points)** Use the rounded answers from above to find the usual range for number of passengers with ticket that show up for this flight.

(g) —————

Study Guide 16 Total Points: 50

4. One-sixth of freshmen entering a large state university are out-of-state students. If the students are assigned at random to the dormitories, 180 to a building, using the $\boxed{\text{exact values for } p \text{ and } q}$, what is the probability that in a given dormitory

   (a) (**2 points**) at most 40 of them are from out of state.

   (a) _____

   (b) (**2 points**) at least 40 of them are from out of state.

   (b) _____

   (c) (**2 points**) at most <u>one-fifth of them</u> are from out of state.

   (c) _____

   (d) (**2 points**) at least <u>two-fifteenths of them</u> are from out of state.

   (d) _____

   (e) (**2 points**) Find the mean number of out of state students in a given dorm.

   (e) _____

   (f) (**2 points**) Find the standard deviation for the number of out of state students in a given dorm.

   (f) _____

   (g) (**2 points**) Find the usual range for number of out of state students in a given dorm.

   (g) _____

$\boxed{\textit{Make yourself very familiar with all the keywords.}}$