

Elementary Statistics

Name: _____

Study Guide 21

Class: _____

Due Date: _____

Score: _____

No Work \Leftrightarrow No Points

Use Pencil Only \Leftrightarrow Be Neat & Organized

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1. (3 points) The incomes of trainees at a local factory are normally distributed with a mean of \$1100 and a standard deviation of \$150. What is the probability the mean salary of 10 randomly selected trainees is more than \$1000 a month?

1. _____

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2. Assume that women's heights are normally distributed with a mean of 63.6 inches and a standard deviation of 2.5 inches. If 20 women are randomly selected,

- (a) (3 points) find the probability that they have a mean height between 62.5 inches and 64.5 inches.

(a) _____

- (b) (3 points) find the probability that they have a mean height less than 62.5 inches or more than 64.5 inches.

(b) _____

3. A bank's loan officer rates applications for credit. The rates are normally distributed with a mean of 200 and a standard deviation of 65. If 12 applicants are randomly selected,

(a) (3 points) find the probability that the mean rating is between 170 and 220.

(a) _____

(b) (3 points) find the probability that the mean rating is less than 210.

(b) _____

(c) (3 points) find the probability that the mean rating is more than 190.

(c) _____

4. A study of amount of time it takes for a teacher to cover a specific chapter in a math class shows a normal distribution with the mean of 7.5 hours and standard deviation of 1.5 hours. If 12 teachers are randomly selected , find

(a) (3 points) the probability that their mean time will be between 7 and 8 hours.

(a) _____

(b) (3 points) the probability that their mean time will be below 7 or above 8 hours.

(b) _____

(c) (2 points) the probability that their mean time will be below 7 and above 8 hours.

(c) _____

5. The incomes of trainees at a local factory are normally distributed with a mean of \$1100 and a standard deviation of \$150.

(a) (2 points) What percentage of a group of 9 trainees can have a mean earning more than \$1000 a month?

(a) _____

(b) (2 points) What percentage of a group of 9 trainees have a mean earning less than \$1150 a month?

(b) _____

6. A bank's loan officer rates applications for credit. The rates are normally distributed with a mean of 200 and a standard deviation of 50. If a group of 10 applicants is randomly selected,

(a) (2 points) find the probability of a mean rating that is between 180 and 215.

(a) _____

(b) (3 points) find a mean rating that separates the top 10% from the bottom 90%.

(b) _____

7. (4 points) Salaries of nurses in southern California are normally distributed with a mean of \$6250 and a standard deviation of \$250. What is the probability the mean salary of 25 randomly selected nurses is below \$6150 or is above \$6350 a month?

7. _____

8. The length of human pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. Considering group of 5 pregnant women,

(a) (2 points) What is the probability that their mean pregnancy last more than 275 days?

(a) _____

(b) (2 points) What is the probability that their mean pregnancy last less than 260 days?

(b) _____

(c) (3 points) What is Q_3 for the length of mean pregnancy, rounded to the nearest number of days?

(c) _____

9. The results on a statistics exam are normally distributed with a mean of 74 and a standard deviation of 8. Considering groups of 4 students, find

(a) (2 points) the lowest mean passing grade if the lowest 20% are given F's. Round to a whole number.

(a) _____

(b) (2 points) the highest mean B if the top 10% are given A's. Round to a whole number.

(b) _____