Elementary Statistics	Name:
Study Guide 20	Class:
Due Date:	Score:

Your solutions must be consistent with class notes & resources.

Be Neat, Organized, and No Work ⇔ No Points

Drawing, Labeling, Shading & Full TI Command Required for Every Problem.

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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. _____

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 <u>percentage</u> of a group of 9 trainees can have a mean earning more than $1000 a month?

(a) _____

    (b) (**2 points**) What <u>percentage</u> 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) _____

> *Take concise, organized, and structured notes in class.*