Chapter 4 Worksheet 1

Are the following True or False?

1. The larger the random sample, the higher the standard error. __________

2. The central limit theorem states that normality applies no matter what the shape of the population distribution, as long as the sample has 30 or more cases. __________

3. The z-score represents the number of standard deviations that a value falls from the mean of the distribution. __________

Fill in the blank:

4. The approximate normality of the __________________ distribution applies no matter what the shape of the ________________ distribution.

5. The probability distribution for the possible values of a sample statistic, such as \( \bar{y} \), is called the ___________________ _________________ of a statistic.

Look at each question and highlight the important phrases or statements, then answer.

6. What is the probability falling between \( \mu - 2.42\sigma \) to \( \mu + 2.42\sigma \)?
   a. Right tail probability=
   b. Left tail probability=
   c. Two-tail probability=
   d. Probability within=


7. Suppose that property taxes on homes in Iowa City, Iowa have approximately normal distribution with a mean of $2500 and a standard deviation of $1500. The property tax for one particular home is $5000.
   a. Find the z-score to that value.

8. What is the z-value so that $\mu \pm z\sigma$ encloses exactly 75% of a curve?

9. Find the z-score such that for a normal distribution the interval from $\mu - z\sigma$ to $\mu + z\sigma$ contains 60% of the data.

10. Find the z-value corresponding to the 85th percentile of a normal distribution.

11. Find the z-score for which the probability that a normal variable exceeds $\mu + z\sigma$ equals 0.08.
12. Find the z-score from a normal distribution where the interval is from $\mu - z\sigma$ to $\mu + z\sigma$
   a. 68%
   b. 95%
   c. 99%
   d. 55%
   e. 70%

13. Find the z-value if the probability of a normal variable is equivalent to $\mu + z\sigma$.
   a. .025
   b. .01
   c. .005
   d. .37
   e. .06
   f. .002

14. Find the z-value corresponding to the percentile of a normal distribution
   a. 68th
   b. 54th
   c. 88th
   d. 30th

15. Y = number of people known personally to be the victims of homicide within the last 12 months. The distribution is P(0)=0.91 P(1)=0.06 P(2)=0.02 P(3)=0.01.
   a. What is the mean of the probability of distribution?
   b. What is the probability that a person did not know anyone who was a victim of homicide in the past 12 months?