**Chapter 6 Written Homework**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Instructor Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Learning Objectives:***

a – Identify the properties of a normal distribution and a skewed distribution.

b – Find the area under the standard normal distribution, given various *z-score* values.

c – Find probabilities for a normally distributed variable by transforming it into a standard normal variable.

d – Find specific data values for given percentages, using the standard normal distribution.

e – Use the Central Limit Theorem to solve problems for large samples

**For the problems that follow you may use the GeoGebra Probability calculator, Excel, or Table E from the textbook. In any case, you must sketch the probability question on the curve provided. Your sketch should include the horizontal-axis properly scaled and shading that accurately depicts the question being posed.**

1. What are the values of μ and σ in the standard normal distribution?
2. For the standard normal distribution below:

a. Find $P(-1.50<z<2.50)$



 b. Explain the process you used to determine your answer.

1. For the standard normal distribution below:

a. Find $P(z>1.59)$



 b. Explain the process you used to determine your answer.

4. For the standard normal distribution below:

a. Find $P(z<-1.23)$



 b. Explain the process you used to determine your answer.

 5. The average credit card debt for college seniors is $3262.

a. If the debt is normally distributed with a standard deviation of $1100, find the probability that a randomly selected student owes less than $1500.

 b. Explain the process you used to determine your answer.

1. Scores on an English test are normally distributed with a mean of 33.8 and a standard deviation of 8.5.



a. Find the score that separates the top 59% from the bottom 41%.

 b. Explain the process you used to determine your answer.