

**Directions:** Complete each problem in your HW notebook. Label it as **Homework #4**

**SHOW ALL WORK (including labeled diagrams) FOR FULL CREDIT!**

- 1.) You are performing a study about the height of 20- to 29-year-old men. You randomly sample 30 men and find their heights to be as follows:

72.1	71.2	67.9	67.3	69.5	68.6	68.8	69.4	73.5	67.1
69.2	75.7	71.1	69.6	70.7	66.9	71.4	62.9	69.2	64.9
68.2	65.2	69.7	72.2	67.5	66.6	66.5	64.2	65.4	70.0

**Determine if the data given can be described as an approximately normal distribution.**

- 2.) The National Collegiate Athletic Association (NCAA) requires Division I athletes to score at least 820 on the combined mathematics and verbal parts of the SAT exam in order to compete in their first college year. In 1999, the scores of the millions of students taking the SATs were approximately normal with mean 1017 and standard deviation 209. What percent of all students had scores less than 820? **(Find answer using Z-Score Table A.)**
- 3.) It is possible to score higher than 800 on either part of the SAT, but scores above 800 are reported as 800. In 1999, the scores of men on the math part of the SAT followed a normal distribution with mean 531 and standard deviation 115. What percent of scores were above 800 (and reported as 800)? **(Find answer using Z-Score Table A.)**
- 4.) Scores on the Wechsler Adult Intelligence Scale for the 20 to 34 age – group are approximately normally distributed with mean 110 and standard deviation 25. How high must a person score to be in the top 25% of all scores?
- 5.) Bags of oranges in a shipment averaged 8 pounds with a standard deviation of 0.5 pounds. A histogram of these weights followed a normal distribution quite closely. What percent of the bags weighed more than 8.25 pounds?
- 6.) Students taking an introductory statistics class in fall 2000 reported spending an average of \$205 on textbooks that quarter with a standard deviation of \$90. Assuming that the data is approximately normal:  
Approximately what percent of the students spend between \$115 and \$295 on textbooks that quarter?
- 7.) Meghan scored an 87 on her biology test, where the class average was an 82 with a standard deviation of 3. Her best friend, Nicole scored an 84 on a history test, where the class average was 78 with a standard deviation of 2.  
Who scored better on their test? Explain.

**TRUE or FALSE**

- 8a.) All symmetric curves are normal distributions. \_\_\_\_\_
- b.) Almost all of the area under a normal curve is within 3 standard deviations of the mean. \_\_\_\_\_

