

# Algebra II

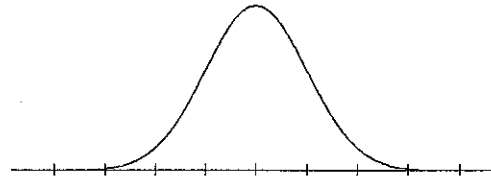
## Using the Empirical Rule

Name \_\_\_\_\_

Hour \_\_\_\_\_

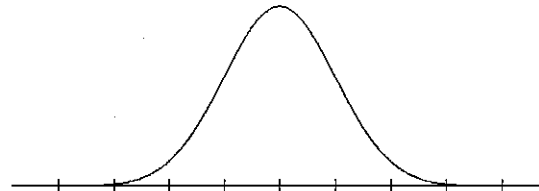
Suppose the monthly charge for cell phone plans is normally distributed with mean  $\mu = \bar{x} = \$62$  and standard deviation  $\sigma = \$18$ . (Source: based on information from Consumers Report)

1. Label the normal curve with the given parameters. Shade the region that represents the percent of plans that charge less than \$44. What is the probability that the plan will charge less than \$44?

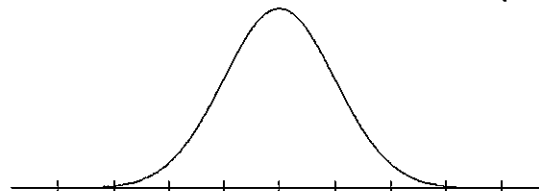


2. What is the probability a randomly selected plan will charge more than \$80? Use a different color and shade the region that represents this situation. Write that percent on your shading.

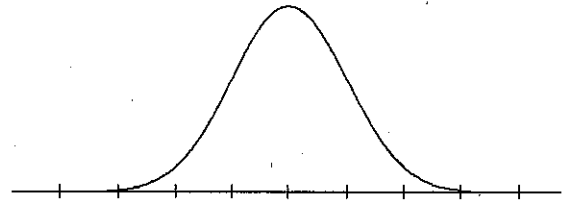
3. What is the probability a randomly selected plan will charge between \$44 and \$62? Shade the region that represents this situation below and write that percent on your shading.



4. What percent of the cell plans would be above two standard deviations of the mean? Shade the region that represents this situation below and write that percent on your shading.



5. What percentage of the cell plans would cost more than \$26? Shade the region that represents this situation below and write that percent on your shading.



As part of a research project the blood pressures of 2000 patients in a hospital are recorded. The systolic blood pressures (given in mm) have an approximately normal distribution with mean  $\mu = \bar{x} = 125$  and standard deviation  $\sigma = 13$ .

6. Estimate the number of patients whose blood pressure was between 99 and 151 mm.
7. Estimate the number of patients whose blood pressure was between 112 and 151 mm.
8. Estimate the number of patients whose blood pressure was 99 mm or higher.
9. Estimate the number of patients whose blood pressure was between 99 and 138 mm.
10. For each of the following blood pressures, estimate the percentile of the patient population to which they correspond.
- a. 99 mm
  - b. 112 mm
  - c. 138 mm
  - d. 164 mm