1. Given a normal distribution, what percentage of values are within 1 standard deviation from the mean?

2. Given a normal distribution, what percentage of values are within 2 standard deviations from the mean?

3. Given a normal distribution, what percentage of values are within 3 standard deviations from the mean?

4. In the United States, the average height of a man is 5’9” = 69 inches, with a standard deviation of 2.5 inches.

   Anyone that is more than two standard deviations from the mean is considered unusual (only 5% of the population, or about 5 out of 100 men), and more than 3 standard deviations from the mean is extremely unusual (only 0.3% of the population, or 3 out of 1000 men).

   Use the properties of the normal distribution and the information above about average men’s heights to find the following:
   a) What heights are within 1 standard deviation?   ___________ to ___________
   b) What heights are within 2 standard deviations?  ___________ to ___________
   c) If a man has a height of 74 inches, he is taller than ________% of the population.
   d) If a man has a height of 64 inches, he is taller than ________% of the population.
   e) If a man has a height of 71.5 inches, ________% of the population is taller than him.
   f) If a man has a height of 76.5 inches, ________% of the population is shorter than him.

5. Given an approximately normal distribution with a mean of 175 and a standard deviation of 37.
   a) Draw a normal curve and label 1, 2, and 3 standard deviations on both sides on the mean.
   b) What percent of values are within the interval (138, 212)?
   c) What percent of values are within the interval (101, 249)?
   d) What percent of values are within the interval (64, 286)?
   e) What percent of values outside the interval (138, 212)?
   f) What percent of values are outside the interval (101, 249)?
   g) What percent of values are outside the interval (64, 286)?
6. The heights of male students is normally distributed with a mean of 170 cm and a standard deviation of 8 cm. Find the percentage of male students whose height is: (Draw and label a bell curve to help)

a) between 162 cm and 170 cm
b) between 170 cm and 186 cm
c) between 178 cm and 186 cm
d) less than 194 cm
e) less than 154 cm
f) greater than 162 cm

7. The army reports that the distribution of head circumference among male soldiers is approximately Normal with mean of 22.8 inches and standard deviation of 1.1 inches. Use the 68-95-99.7 rule to answer the following questions. Draw the Normal curve and show your method.

a) A male soldier whose head circumference is 22.8 inches would be at what percentile?
b) What percent of male soldiers have a head circumference between 19.5 inches and 23.9 inches?
c) A male soldier whose head circumference is 23.9 inches would be at what percentile?