Normal Distribution Empirical Rule Practice

1. Suppose the distribution of monthly earnings for all people who possess a Bachelor's degree is known to be bell-shaped and symmetric with a mean of $2116 and a standard deviation of $455.
    a. What percentage of individuals with a bachelor's degree earn less than $1661 per month?
    b. What percentage of individuals with a bachelor's degree earn between $3026 and $3481 per month?
    c. If a sample of 520 people with a bachelor's degree is taken, how many people will earn less than $1206 per month?

2. You go to Double Dip for a single serving. Their normal distribution is 8 ounces, with a standard deviation of ¼ oz. Suppose your serving weighs 8.5 ounces, what percentage of servings are smaller than yours?

3. Mary's commute to Dallas for work has a normal distribution, with a mean of 45 minutes and a standard deviation of 10 minutes. What percentage of the time does Mary get to work in 30 minutes or less?

4. Assume that the heights of college women are normally distributed, with mean 65 in. and standard deviation 2.5 in.

    a. What percentage of women are taller than 65 in.?

    b. What percentage of women are between 62.5 in. and 67.5 in.?

    c. What percentage of women are between 60 in. and 70 in.?

    d. What percentage of women are between 60 and 67.5 in?

    e. What percentage of women are shorter than 70 in.?

5. At Burnt Mesa Pueblo, archaeological studies have used the method of tree ring dating in an effort to determine when prehistoric people lived in the pueblo. Wood from several excavations gave a mean of (year) 1243 with standard deviation 36 years. The distribution of dates was more or less normal.

    a. Estimate the range of years centered about the mean in which about 68% of the data will be found.

    b. Estimate a range of years centered about the mean in which about 95% of the data will be found.

c. Estimate a range of years that the lower 16% of the data will be found.

d. Estimate a range of years that the upper 2.5% of the data will be found.

6. The incubation time for Rhode Island Red chicks is normally distributed with mean 21 days and standard deviation approximately 1 day. If 1000 eggs are being incubated, how many chicks do we expect will hatch

   a. In 19 to 23 days?

   b. In 21 days or fewer?

   c. In 19 days or fewer?

   d. In 18 to 24 days?

   e. In 22 days or more?