

PROB STAT HONORS

Name _____

8.4 – SAMPLING DISTRIBUTION OF THE SAMPLE MEAN

1. A survey found that the American family generates a mean of 17.2 pounds of glass garbage each year. Assume the standard deviation of the distribution is 2.5 pounds. Find the probability that the mean of a sample of 55 families will be between 17 and 18 pounds.
2. The mean serum cholesterol level of a large population of overweight children is 220 milligrams per deciliter (mg/dl), and the standard deviation is 16.3 mg/dl. If a random sample of 35 overweight children is selected, find the probability that the mean will be between 220 and 222 mg/dl.
3. A recent study of the lifetimes of cell phones found the mean is 24.3 months. The standard deviation is 2.6 months. If a company provides its 33 employees with a cell phone, find the probability that the mean lifetime of these phones will be less than 23.8 months.
4. The *Old Farmer's Almanac* reports that the mean water usage per person is 123 gallons of water daily. If the standard deviation is 21 gallons, find the probability that the mean of a randomly selected sample of 15 people will be between 120 and 126 gallons. Assume that water usage is normally distributed.
5. In a recent year, Delaware had the highest per capita annual income of all US States at \$51,803. If $\sigma = \$4850$, what is the probability that a random sample of 34 Delaware residents had a mean income greater than \$50,000?
6. The mean weekly income of information workers in private industry is \$777. If the standard deviation is \$77, what is the probability that a random sample of 50 information workers will earn, on average, more than \$800 per week?