

## Math 10 - Homework Chapter 6

1. High Fructose Corn Syrup (HFCS) is a sweetener in food products that is linked to obesity and type II diabetes. The mean annual consumption in the United States in 2008 of HFCS was 60 lbs with a standard deviation of 20 lbs. Assume the population follows a Normal Distribution.
  - a. Find the probability a randomly selected American consumes more than 50 lbs of HFCS per year.
  - b. Find the probability a randomly selected American consumes between 30 and 90 lbs of HFCS per year.
  - c. Find the 80<sup>th</sup> percentile of annual consumption of HFCS.
  - d. In a sample of 40 Americans how many would you expect consume more than 50 pounds of HFCS per year.
  - e. Between what two numbers would you expect to contain 95% of Americans HFCS annual consumption?
  - f. Find the quartiles and Interquartile range for this population.
  - g. A teenager who loves soda consumes 105 lbs of HFCS per year. Is this result unusual? Use probability to justify your answer.

2. A normally distributed population of package weights has a *mean* of 63.5 g and a *standard deviation* of 12.2 g.
- a. What percentage of this population weighs 66 g or more?
  - b. What percentage of this population weighs 41 g or less?
  - c. What percentage of this population weighs between 41 g and 66 g?
  - d. Find the 60<sup>th</sup> percentile for distribution of weights.
  - e. Find the three quartiles and the interquartile range.