**Class Assignment - Lesson 07**

1. The reading speed of second grade students is approximately normal, with a mean of 90 words per minute (wpm) and a standard deviation of 10 wpm (Sullivan, pp. 439).

a. (1 pt.) What is the probability a randomly selected student will read more than 95 words per minute?

**Probability = 0.309**

b. (1 pt.) If a random sample of 24 second grade students was taken, what would be the mean, standard deviation and shape of the distribution of sample means?

**Mean = 90 Standard Deviation = Shape = Approximately Normal (Since the Orig. Dist. Is normal)**

c. (1 pt.) What is the probability that a random sample of 24 second grade students results in a mean reading rate more than 95 words per minute?

**Probability = 0.007**

1. The amount of time Americans spend watching television is closely monitored by A.C. Nielsen because this helps to determine advertising pricing for commercials. It is known the distribution of time Americans watch television is right skewed, with a mean of 2.35 hours per day and a standard deviation of 1.93 (Sullivan, pp. 440).

a. (1 pt.) If a random sample of 4 Americans was taken, what would be the mean, standard deviation and shape of the distribution of sample means?

**Mean = 2.35 Standard Deviation = Shape = Right-Skewed (since the sample size is relatively small)**

b. (1 pt.) If a random sample of 100 Americans was taken, what would be the mean, standard deviation and shape of the distribution of sample means?

**Mean = 2.35 Standard Deviation = Shape = Approx. Normal (since the sample size is large)**

c. (1 pt.) Is the mean of the distribution of sample means greater than, equal to, or less than the original population mean?

**Equal to**

d. (1 pt.) Is the standard deviation of the distribution of sample means greater than, equal to, or less than the original population standard deviation?

**Less Than**

e. (1 pt.) If we have a large enough sample size, what rule, theorem, or law allows us to assume that the sampling distribution of means is approximately normal?

**Central Limit Theorem**

f. (1 pt.) What is the probability that a random sample of 100 Americans results in a mean hours of television watched in a day to be below 2 hours a day?

**Probability = 0.035**