**Lesson 10 – Class Activity**

1. Were you in class today? (6 Points)
2. Were you on time to class today? (3 points)
3. The Energy Information Administration (EIA) determines that national average gasoline price by collecting retail prices for gasoline from a random sample of 100 retail gasoline outlets from across the country. The EIA reported from the sample the national average retail price for gasoline to be $4.113 per gallon. Assume that the population standard deviation is σ = $0.110 per gallon.

Use that information to answer the following questions.

* 1. (1 pt) What is the point estimate for the national average retail price of gasoline?

**$4.113 per gallon**

* 1. (1 pt) Find the margin of error for a 95% confidence interval.

**$0.022 per gallon**

* 1. (1 pt) Find and interpret a 95% confidence interval for the true mean retail price of gasoline.

**We are 95% confident that the true mean retail price of gasoline is between $4.091 and $4.135.**

* 1. (1 pt) Find and interpret a 99% confidence interval for the true mean retail price of gasoline.

**We are 99% confident that the true mean retail price of gasoline is between $4.085 and $4.141.**

* 1. (1 pt) You got funding to do the study again with a greater sample size and you got a sample mean of $4.113 with a sample size of 1500. Find and interpret 95% confidence interval for the true mean retail price of gasoline. **We are 95% confident that the true mean retail price of gasoline is between $4.107 and $4.119.**
  2. (1 pt) How does the width of the margin of error change when you increase the confidence level?

**The margin of error increases when you increase the confidence level.**

* 1. (1 pt) How does the width of the margin of error change when you increase the sample size?

**The margin of error decreases when you increase the sample size.**

* 1. (1 pt) When doing a 95% confidence interval, what is the probability of capturing the true mean.

**0 or 1**

* 1. (1 pt) If we could do multiple 95% confidence intervals, approximately what percentage of confidence intervals would contain the true mean?

**Approx. 95%**