Name: _____
MAT 222
Spring 2019
Homework 8

"My name is Ozymandias, King of Kings; Look on my Works, ye Mighty, and despair!"
–Percy Shelley, Ozymandias

Problem 1: The Mathematics Department is trying to predict students take-home exam scores from their in-home exam scores. They perform a test on 9 students and record their in-class and take-home exams scores to create a linear model. A few of the model statistics are reported below.

$$\begin{array}{lll} \overline{x} = 34.00 & s_x = 14.30 & \sum(x_i - \overline{x})^2 = 1636.0 \\ \overline{y} = 20.67 & s_y = 7.25 & \sum(y_i - \overline{y})^2 = 420.0 \\ r = 0.849 & s = 4.089 & \\ b_0 = 6.04 & b_1 = 0.43 & \end{array}$$

(a) Use s_x to confirm the value $\sum(x_i - \overline{x})^2 = 1636.0$.

(b) What was the resulting linear model for their statistical analyses?

(c) What is the standard error for b_0?

(d) Create a 99% confidence interval for the coefficient b_1.

(e) What is the value of SST?

(f) What is the value of the coefficient of determination for this model? What does it tell you?

(g) What is the value of the MSE for this model?

(h) Create a 90% confidence interval for the take-home exam score of a student who receives an in-class exam score of 40.

(i) What is the *mean* take-home exam score for a student who receives an in-class exam score of 40?