- Make sure you use the correct number of decimal places. If you are not sure, use four. I will take a couple of points off if your answer has too few decimal places.

- Where appropriate, show your work. If you are in doubt, show the work.

1. Gradual shifting of a time series over a long period of time is called

A. Periodicity
B. Cycle
C. Regression
D. Trend

Answer: _____

2. The focus of smoothing methods is to smooth

A. The irregular component.
B. Wide seasonal variations.
C. Significant trend effects.
D. Long range forecasts.

Answer: _____

3. The number of cans of soft drinks sold in a machine each week is recorded below. Develop forecasts using a three period moving average. Take the moving average out for eight (8) periods. (Take the values out two (2) decimal places.)

338
219
278
265
314
323
299
259
287
302

Questions 4 through 6 are based on the following information.

Consider the linear regression equation which predicts expenditures on imported goods based on personal disposable income. They are both measured in billions of 1982 dollars.

$$\hat{y} = -261.09 + 0.2453 x_t$$
$$(31.327) \quad (0.0147)$$

$t_0 = 8.33$ and $t_1 = 16.616$

4. According to the equation above, if personal disposable income rises by \$4 billion, by how much will spending on imports rise. (You must take your answer out four (4) decimal places.)

Answer: _____

5. If total personal disposable income is \$2.3 trillion how much can we expect to be spent on imports? (Take the answer out two (2) decimal places.)

Answer: _____

6. Are the values identified as b_0 and b_1 statistically significant? You must explain why or why not.

Answer: _____

Questions 7 through 9 are based on the following information.

Suppose you are looking at a linear regression equation of the form:

$$\hat{y} = 1.2108 + 0.4014 x_{1,i} + 0.0270 x_{2i}$$
$$(0.9485) \quad (0.2848) \quad (0.1252)$$

$t_0 = 1.28$
$t_1 = 1.57$
$t_2 = 0.22$

7. Which coefficients are statistically significant and explain why or why not.

Answer: _____

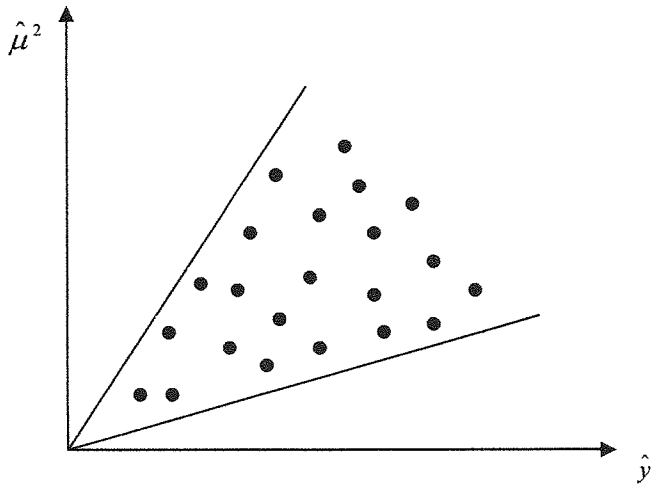
8. You now see that the R^2 is 0.8241. Explain why this is so important in light of the values for the t-statistics.

Answer: _____

9. Now, you are told that the value of the correlation coefficient, R, between the two independent variables, is 0.9107. In other words, $R_{x_1,x_2} = 0.9107$. Is this something to be concerned about, why or why not.

Answer: _____

10. Suppose we plot the squared residuals and the pattern looks like the following. What does this indicate. Be specific.



Answer: _____