STU22005 Applied Probability II
Continuous Assessment Sheet 3, Answer Sheet

For each question, fill in the following answers. Please use the 'insert text at cursor' option to add your answers (please **do not use** the 'add comment' function to do this).

Save this document and the separate document with your workings, and upload both to Blackboard.

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1.

a. Give a one sentence answer based on the sketch (that should be in your workings).

There seems to be an indication that the mean value of Y depends on x, from the way the values in the scatter plot are presented

b. Intercept estimate: 4.5413.

Slope estimate: 0.0704.

c. Slope interpretation: For a unit increment in the dose of this drug given the average reduction in blood pressure is around 0.0704

Intercept interpretation: Even when the number of doses is zero or when no doses are given, still the mean reduction in blood pressure according to this SLR model is 4.5413

d. Variance estimate: 2.97423.

Variance interpretation: 2.97 if considered moderate-low then we can say that the predicted reductions are just a little spread out from the actual reductions based on the MSE, and hence it is a good model

e. Are the assumptions reasonable?

1. E[ei] = 0, this holds well as it is visible from the mean on the graph cuts through the zero

2. Var(ei)=σ^2 (doesn't depend on i), it seems reasonable to assume that var(ei) = σ^2 as there is no clear visible pattern(increasing/decreasing)

3. ei are independent, this holds well as it is clearly visible from the graph as none of the ei seem to interfere with any other ei

4. ei ~ N(o,σ^2), this doesn't seem reasonable as from the qq plot some points at the tail seem to slightly deviate from the normal distribution slighlty