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.

Name Edward Johnson

Student number 19335618

1.

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

From this sketch, it does appear that the mean value of Y depends on x, as Y is positively correlated at least somewhat.

b. Intercept estimate: 4.4933.

Slope estimate: 0.071.

c. Slope interpretation: The estimated average reduction in blood pressure per number of doses is 0.071 units.

Intercept interpretation: The estimated average reduction in blood pressure without any doses is 4.4933. This suggests that either the blood pressure reduces during the experiment anyway or that a single dose has much more of an affect than the individual affect of multiple doses.

d. Variance estimate: 2.975.

Variance interpretation: The estimated average variance of the error term is 2.975, which indicates the observations lie within 2.975 units from our fitted model on average.

e. Are the assumptions reasonable? We assume the errors have a mean of 0, a constant variance, are all independent and are normally distributed. The "Residuals versus predicted values" plot confirms our first 3 assumptions: The errors seem to be distributed around 0 with a constant variance and do not exhibit a clear pattern or shape. The QQ plot also confirms our final assumption: The points appear to follow the plotted line, suggesting the errors are normally distributed. Therefore, all the assumptions are reasonable.