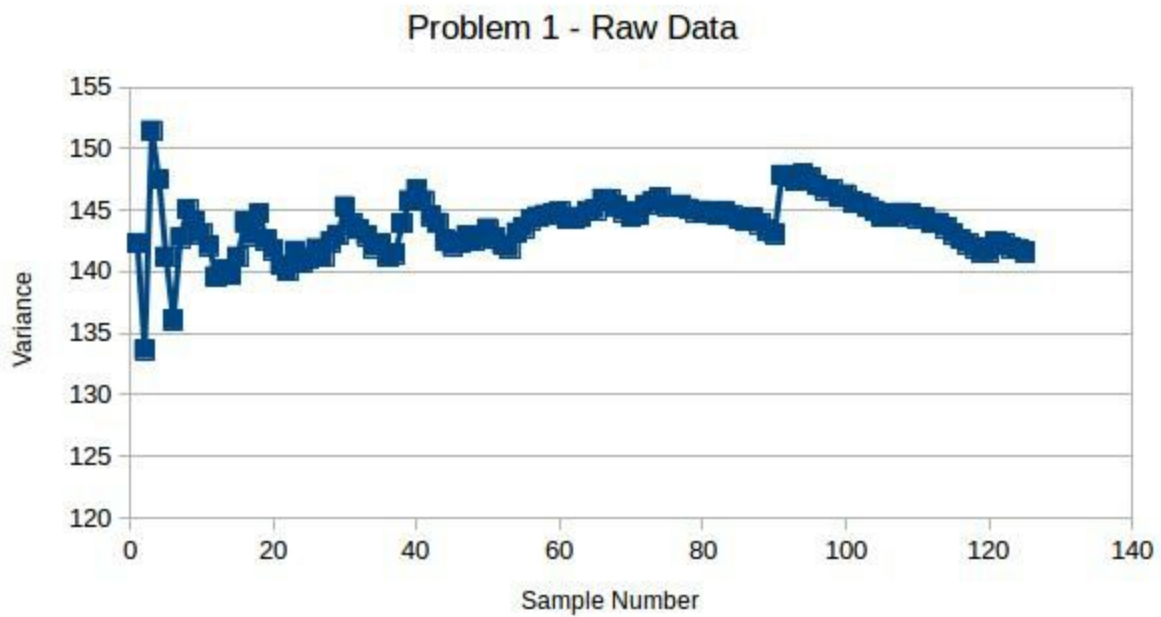


Rachel Law
861071722
CS 177

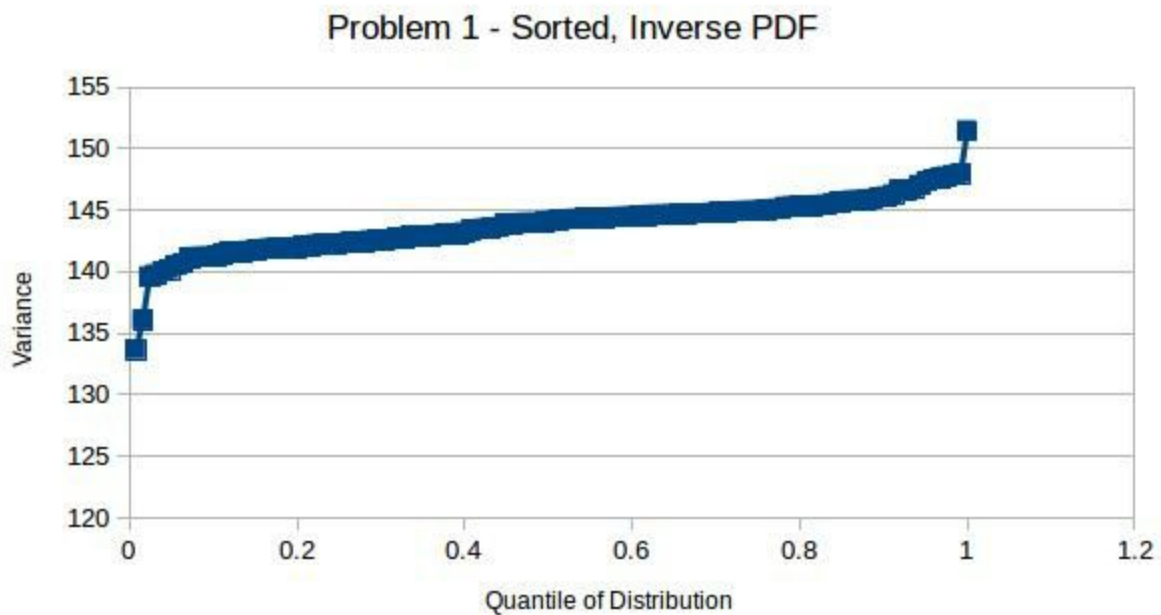
Lab 7

Problem 1

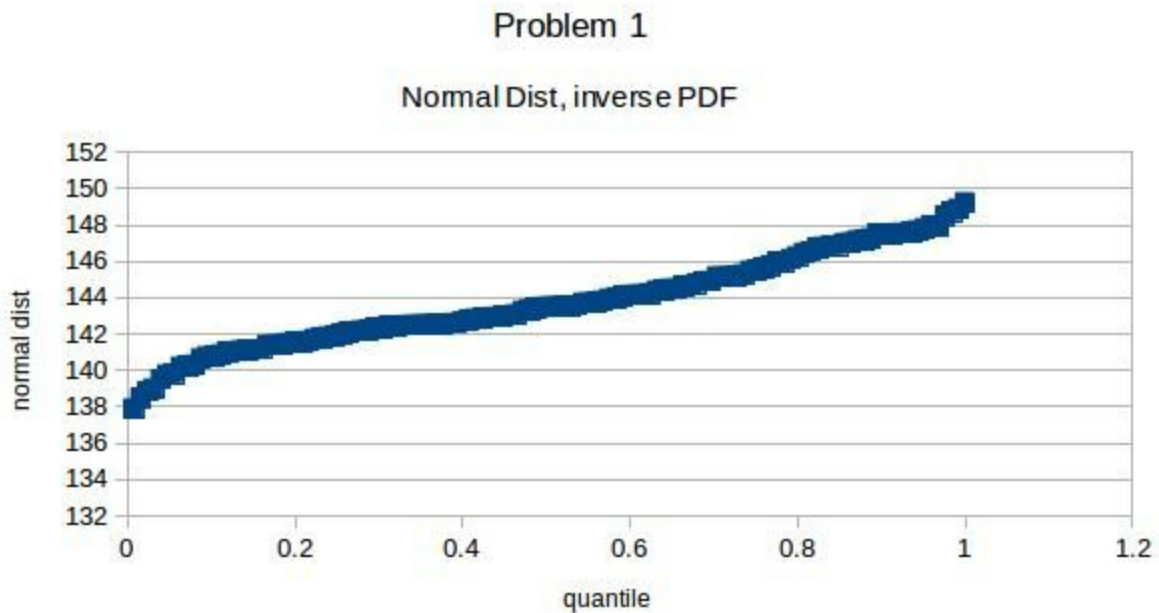
1) Raw data



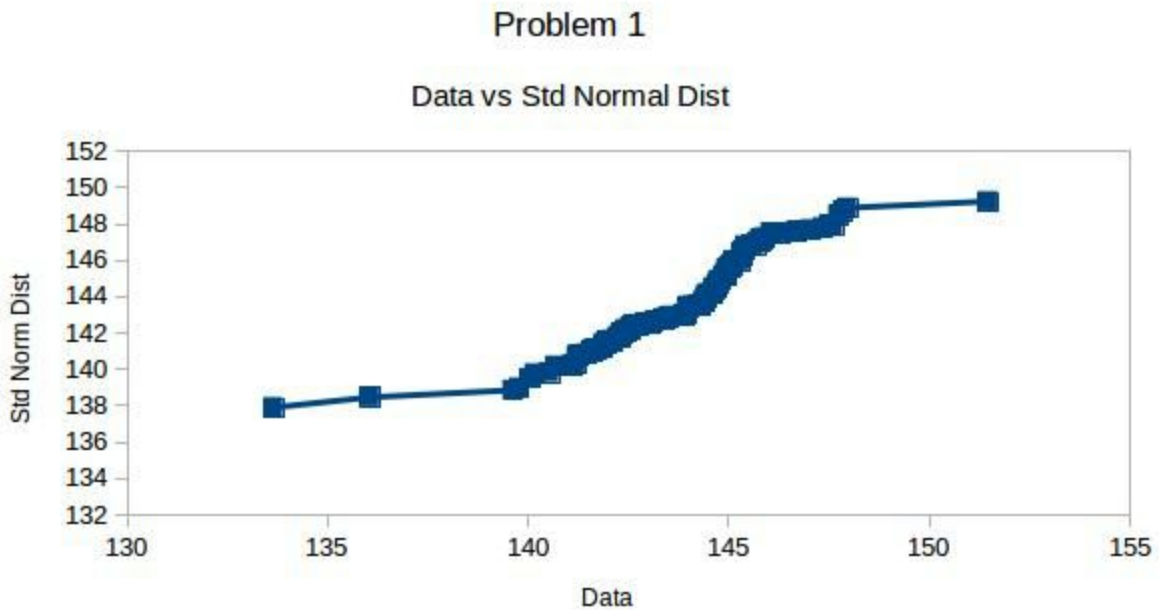
2) Raw data inverse pdf



3)



4)



a. Does the empirical data fit a normal distribution? How can you tell from the plot?

The empirical data fits a normal distribution. Looking at the 2nd graph of inverse pdf of the sorted raw data against the quantiles, you see a linear line. You also see a linear line when the raw data is graphed against a normal distribution in the 4th graph. This indicated a normal

distribution rather than some other type of distribution. Another type of distribution would show a curved plot.

b. If the number of samples in your theoretical and empirical distribution are not equal, what would be the extra step needed before you could generate the Q-Q plot?

- $X^{(i)}$ is chosen so that $F_X(X^{(i-1)}) < q \leq F_X(X^{(i)})$, and
- y_j is chosen so that $F_Y(y_{j-1}) < q \leq F_Y(y_j)$.

We can use the same number of samples in the theoretical plot as in the empirical data plot. If we want the same number, we are getting the theoretical plot numbers by generating them randomly from a distribution type give the mean and std dev of the empirical data. Therefore we can choose to match the number of empirical data points.