2.

a) μ_S represents the average fuel consumption of car S. σ_S^2 represents the variance of the fuel consumption of car S. μ_H represents the average fuel consumption of car H. σ_H^2 represents the variance of the fuel consumption of car H.

b) The confidence interval for σ_S is from 8.265159 to 15.87378. The confidence interval for σ_H is from 5.844078 to 11.22394. I think σ_S does not equal to σ_H. This is because there is almost no coincidence or overlap for these two intervals. To be specific, the lower bound of the confidence interval for σ_S is 8.265159, but the upper bound of the confidence interval for σ_H is 11.22394. Their difference is just 11.22394 - 8.265159 = 2.9588, which shows that the overlap area between these two intervals is not large.

c) The confidence interval is between -2.872319 and 9.178219.

d) The confidence interval is between -2.680554 and 8.986454.