

Homework 2

525 Spring 2006

Due Feb 21

1. Let X_1, \dots, X_n be independent and having a common distribution $\sim N(\mu, \sigma^2)$ where both μ and σ^2 are unknown, $-\infty < \mu < \infty$, $0 < \sigma^2 < \infty$. (Please note, here the variance σ^2 is the parameter not the standard deviation σ)

Given the data as on page 284, Use only the X column.

- a) Use the pivotal in (9.20b) to obtain a 95% confidence interval for μ .
- b) Use the pivotal in (9.20a). Assume $\sigma^2 = 2$ obtain 90% confidence interval for μ .

As σ^2 value changes, how is the interval changes?

- (c) assume σ^2 is unknown, get a 90% confidence interval for the σ^2 , using one of the pivotal in (9.33).