

**STAT 400 SUMMER II 2001 (PROFESSOR GREEN)  
SOLUTIONS TO PROBLEMS DUE AUGUST 21**

2. The test statistic takes the value 4.85 which is considerably larger than  $z_{.025}$ , so the null hypothesis of equality is rejected in favor of the alternative hypothesis of inequality.

4.

(a) The desired confidence interval is (1251,2949), which suggests that the estimate is not at all precise.

(b) 6353

8. The test statistic takes a value greater than 28, which gives a  $P$ -value unmeasurably close to 0 with the charts available. The evidence is indeed compelling. A 1% confidence interval for the difference is given by (15.549,16.541).

10. If the standard errors are taken to be standard errors for the sample means, then a 95% confidence interval is (1.629,1.771). A 95% confidence interval, assuming that the standard errors are sample standard deviations is (1.693,1.706).

12. The appropriate value of  $n$  is 50. It is obtained by solving the equation

$$z_{.01} - \frac{.04}{.05} \sqrt{\frac{n}{2}} = -z_{.05}$$

and rounding up.