

**STAT 400 SUMMER II 2001 (PROFESSOR GREEN)  
SOLUTIONS TO PROBLEMS DUE AUGUST 22**

18. The test statistic takes the value 6.166, with six degrees of freedom. This gives a two-sided  $P$ -value under .001, providing very strong evidence that the average densities are different.

20. A 95% confidence interval for the difference, taken in the positive sense, is (6.8,20.4). This does not suggest that substantial confidence and substantial precision can be combined.

24. The data indicate 30 degrees of freedom in this case. A 95% confidence interval for the difference in firmness is (3.09,3.79), which appears to suggest considerable ripening in twenty days.

28. The test statistic takes the value 3.457 with eight degrees of freedom, giving a (one-sided)  $P$ -value of about .0045. This suggests strongly that the average force after impact is greater for advanced players.

30. With 37 degrees of freedom (rounded down to 36 to accomodate the table), the 99% confidence interval for the difference (taken in the positive sense) is (6.82,11.98). The 99% confidence upper bound is 11.71.