STA 102 Spring 2002
Chapter 13 Solutions to Suggested Even Problems

2,4 not shown

6.
a) $\mu_T=13*14/4=45.5$; $\sigma_T=14.3$; $z_T=-2.69$.
Therefore, $p=0.008<0.05$ and we reject H_0 and conclude that the median difference is not equal to zero. Most of the differences are positive; this indicates higher energy expenditure among cf patients.
b) The conclusions of both the signed-rank and the sign test are the same (but with different p-values); in the sign test, we also found that there is higher energy expenditure among cf patients.

8.
a) T = 95; $\mu_T=95$; $\sigma_T=24.85$; $z_T = -2.09$; $p=0.036<0.05$; and we reject H_0 and conclude that the median difference is not 0.
b) The differences are roughly symmetric and could be considered approximately normally distributed. Therefore, it would not have been inappropriate to use the paired t-test to evaluate these data.

10.
a) Sum(ranks for bulimic group)=337.5 < Sum(ranks for healthy group)=403.5; therefore, W=337.5
$\mu_W = 448.5$; $\sigma_W =33.5$; $z_W=-3.31$; $p<0.001$ and we reject H_0. Median caloric intake is not identical for the two groups.
b) Sum(ranks for bulimic group)=337.5 < $\mu_W =448.5$); therefore the median caloric intake for bulimic individuals is less than the median caloric intake for healthy subjects.

12.
a) If W=16, the p-value of the two-sided test is p=2(0.2063)=0.4126
b) W=12;p=2(0.0317)=0.00634