STA 102 Spring 2002
Chapter 10 Solutions to Suggested Even Problems

2,4,6,8 not shown

10.
a) H_0: $\mu \geq 7250$ cells/mm^3; H_A: $\mu < 7250$ cells/mm^3
b) Since the population s.d. is unknown, we use the t-test rather than the z-test; t = - 3.00. For t with 14 df we find that 0.0005 < p-value < 0.005. Therefore, ee reject H_0
c) We conclude that the mean white blood cell count of humans infected with E. canis is lower than 7250 cells/mm^3, the mean of the general population.

12.
a) H_0: $\mu = 136$ mm Hg; H_A: $\mu \neq 136$ mm Hg; t = 2.66. For t with 85 df we find that 2(0.0005) < p-value < 2(0.005). Therefore, we reject H_0 at the 10% level.
b) H_0: $\mu = 84$ mm Hg; H_1: $\mu \neq 84$ mm Hg; t = 1.74. 2(0.025) < p-value < 2(0.05). Therefore, we reject H_0 at the 10% level.
c) The workers who have experienced a major coronary event have a higher mean systolic blood pressure and also a higher mean diastolic blood pressure than the workers who have not.

14.
a) P(type I error) = 0.05
b) P(type II error) = 0.081
c) power = 0.919
d) A sample of size 30 would be required.
f) A sample of size 23 would be required.

16.
a) p-value = 0.0001. Therefore, we reject the null hypothesis that the mean PDI sore is equal to 100. In fact, it is less than 100.
b) p-value = 0.0004, therefore, we reject the null hypothesis that the mean MDI sore is equal to 100. In fact, it is greater than 100.
c)CI for PDI mean is (92.2, 97.4). CI for MDI mean is (102.2, 107.3). Neither contains 100, as expected.