

STA 102 Spring 2002
Chapter 11 Solutions to Suggested Even Problems

2,4 not shown

6.

a) $H_0: \mu_{\text{cancer}} = \mu_{\text{control}}$

$H_A: \mu_{\text{cancer}} \neq \mu_{\text{control}}$

$t = 2.22$ (170 df)

$0.02 < p < 0.05$

Reject the null hypothesis at the 0.05 level of significance and conclude that the true difference in population mean blood levels of DDE is not equal to zero.

b) We would not expect the 95% confidence interval to contain zero since we rejected the null hypothesis at the 0.05 level.

8.

a) The two samples of data are independent.

b) $H_0: \mu_1 = \mu_2$

$H_A: \mu_1 \neq \mu_2$

c) Pooled estimate of variance $s_p^2 = 0.00064$

$t = 0.86$ (236 df or approximately normal)

p-value = $2*(0.195) = 0.390$

We fail to reject the null hypothesis.

10.

a) Intervention Group 95% CI (use 120 df entry): (50.3, 59.3)

Control Group 95% CI (use 120 df entry): (63.9, 75.1)

b) $H_0: \mu_1 = \mu_2$

$H_A: \mu_1 \neq \mu_2$

$t: -4.05$ (df ≈ 282 use normal table)

p-value < 0.001

We reject the null hypothesis.

c) 95% CI for the true difference in population means (using normal table) (-21.8, -7.6)

d) $t = -1.64$ (df = 301 use normal table)

p-value = 0.102

We fail to reject the null hypothesis at the 0.05 level.

12.

a) $H_0: \mu_1 = \mu_2$

$H_A: \mu_1 \neq \mu_2$

$t = -2.15$

df = 19

$0.02 < p\text{-value} < 0.05$

Reject the null hypothesis and conclude that the mean age is not the same for the two groups of patients.

b) Because we reject the null hypothesis at the 0.05 level, the 95% CI would not contain 0.

14.

a) not shown, but appears approximately normal

b) $H_0: \mu_m = \mu_f$

$H_A: \mu_m \neq \mu_f$

p-value = 0.5451