Homework Solutions
Chapter 11 − Page 689

Exercise 12

(a) We should use a t-test on the differences d.

(b) Let $\mu_D = \mu_{\text{Without}} - \mu_{\text{With}}$. Then the hypotheses should be

$$H_0: \quad \mu_D = 0$$
$$H_1: \quad \mu_D > 0$$

(c) The formula for t is $t = \dfrac{\bar{d} - 0}{s_D/\sqrt{n}}$ and $\bar{d} = 1.667$ and $s_D = 4.097$. So

$$t = \frac{1.667 - 0}{4.097/\sqrt{12}} = 1.409.$$

The p-value is `tcdf(1.409,E99,11)` $= 0.0932$. At the 5% level, we should accept H_0.