

Homework Solutions

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Exercise 29

- (a) Let μ_1 be the average number of hours on course work by C students and let μ_2 be the average number of hours on course work by D students. The hypotheses are

$$H_0 : \mu_1 = \mu_2$$

$$H_1 : \mu_1 > \mu_2$$

- (b) We will do the remaining steps, steps 2 through 7.

2. $\alpha = 0.10$.

3. $t = \frac{(\bar{x}_1 - \bar{x}_2) - 0}{s_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$.

4. First, compute s_p . Enter the data into two separate lists in the TI-83 and use **1-Var-Stats** for each list. We obtain $\bar{x}_1 = 4.6$, $s_1 = 3.406$, $\bar{x}_2 = 2.25$, and $s_2 = 1.282$. Then calculate s_p .

$$\begin{aligned} s_p &= \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}} \\ &= \sqrt{\frac{9 \cdot 3.406^2 + 7 \cdot 1.282^2}{16}} \\ &= 2.692. \end{aligned}$$

Compute t .

$$\begin{aligned} t &= \frac{4.6 - 2.25}{2.692 \sqrt{\frac{1}{10} + \frac{1}{8}}} \\ &= \frac{2.35}{1.277} \\ &= 1.840. \end{aligned}$$

5. $p\text{-value} = \text{tcdf}(1.840, \text{E99}, 16) = 0.0422$.

6. Reject H_0 .

7. C students spend more time on course work outside of class than do D students.

You could use **2-SampTTest** to compute the values in Steps 4 and 5.