Practice Quiz 15 (Problems on quiz 15 is based on sections 12, 13, and 14)

Example 1 :   Test at the $\alpha = 5\%$ whether the **average** life of Diehard batterie**s is less or equal than** Everlast. Sample from these two type of batteries are as such: Below is a sample information of these two brands.

Die Hard	(μ_1)	$n_1 = 60$	$\bar{x}_1 = \mathbf{48}$	$s_1 = 8$
Everlast	(μ_2)	$n_2 = 40$	$\bar{x}_2 = \mathbf{46}$	$s_2 = 10$

SC: $\mu_1 \quad \mu_2$ $\mathbf{H_0}: \mu_1 \quad \mu_2$ $\mathbf{H_0}: \mu_1 - \mu_2 \quad 0$ **Hint**: Use $\mathbf{H_1}$ to determine if it is LTT ,TTT or RTT test

OC: $\mu_1 \quad \mu_2$ $\mathbf{H_1}: \mu_1 \quad \mu_2$ $\mathbf{H_1}: \mu_1 - \mu_2 \quad 0$

When α = .05 , n > 30 and one –tailed test then by using bottom row of page **Table 2**
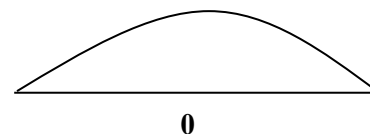
Critical value = CV=**Z =**

CPoint Estimate $(\bar{x}_1 - \bar{x}_2) =$

$$z = \frac{(\bar{x}_1 - \bar{x}_2) - 0}{\sqrt{\dfrac{s_1^2}{n_1} + \dfrac{s_2^2}{n_2}}} = \frac{}{\sqrt{\underline{\quad\quad} + \underline{\quad\quad}}} = \frac{}{\sqrt{\underline{\quad\quad}}} = - =$$

Conclusion: Accept or reject $\mathbf{H_0}$?   **Comment**: Accept or reject **SC**?

P-value: $\alpha = \mathbf{0.05}$ Accept or reject **Ho**

Example 2 : Research question: Do patients who receive our treatment weigh less than participants who do not receive our treatment? Participants were randomly assigned to the treatment condition or a control group. After our intervention, their weights were measured in pounds. Weight is a quantitative variable, so we are going to be comparing means in this example. Our treatment group has a sample size of 45, mean of 140 pounds, and standard deviation of 20 pounds. Our control group has a sample size of 40, sample mean of 150 pounds, and standard deviation of 25 pounds.   Use $\alpha = \mathbf{0.10}$

Group 1 is those who receive our treatment and **Group 2** is those who do not receive our treatment

SC: $\mu_1 \quad \mu_2$ $\mathbf{H_0}: \mu_1 \quad \mu_2$ $\mathbf{H_0}: \mu_1 - \mu_2 \quad 0$ **Hint**: Use $\mathbf{H_1}$ to determine if it is LTT ,TTT or RTT test

OC: $\mu_1 \quad \mu_2$ $\mathbf{H_1}: \mu_1 \quad \mu_2$ $\mathbf{H_1}: \mu_1 - \mu_2 \quad 0$

When α = 10 , n > 30 and one –tailed test then by using bottom row of page **Table 2**

Critical value = CV=**Z =**

CPoint Estimate $(\bar{x}_1 - \bar{x}_2) =$

$$z = \frac{(\bar{x}_1 - \bar{x}_2) - 0}{\sqrt{\dfrac{s_1^2}{n_1} + \dfrac{s_2^2}{n_2}}} = \frac{}{\sqrt{\underline{\quad\quad} + \underline{\quad\quad}}} = \frac{}{\sqrt{\underline{\quad\quad}}} = - =$$

Conclusion: Accept or reject $\mathbf{H_0}$?   **Comment**: Accept or reject **SC**?

P-value: $\alpha = \mathbf{0.10}$ Accept or reject **Ho**