Practice Set 14 Large Sample Hypothesis Testing Part II

I. Darin buys material for his 30-milligram parts from suppliers A and B. A sample of 30 orders placed with supplier A had a mean delivery time of 24 days and a standard deviation of 9 days. A sample of 40 orders placed with supplier B had a mean delivery time of 27 days and a standard deviation of 10 days. Using a .05 level of significance, determine whether these suppliers have different mean delivery times.

Supplier A	Supplier B
$n_1 = 30$	$n_2 = 40$
$\bar{x}_1 = 24$ days	$\bar{x}_2 = 27$ days
$s_1 = 9$ days	$s_2 = 10$ days

1. $H_o: \mu_1 = \mu_2$ $\quad H_1: \mu_1 \neq \mu_2$
2. $\alpha = .05$ and $.05 \div 2 = .025$
3. $\bar{x}$ is the test statistic.
4. The critical value of z for .025 is ± 1.96. If the test Z is beyond -1.96, reject H_0.
5. Apply the decision rule.

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} = \frac{24 - 27}{\sqrt{\frac{(9)^2}{30} + \frac{(10)^2}{40}}} = \frac{-3}{2.280} = -1.32$$

Accept H_0 because -1.32 is not beyond -1.96. Delivery times are the same.

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