Diferencia entre medias poblacionales

① $\bar{A} = \frac{180+180+\dots+165}{15} = 181.33$ $\quad \sigma_A^2 = 57.05$ $\quad 1-.85 = .15$

$\bar{B} = \frac{210+215+\dots+23}{20} = 211.9$ $\quad \sigma_B^2 = 34.63$ $\quad \frac{.15}{2} = .075$

$P(z > a) = .075$

$1 - P(z \leq a) = .075$

$P(z \leq a) = 0.925$

$a = 1.44$

$$Z = \frac{181.33 - 211.9}{\sqrt{\frac{57.05}{15} + \frac{34.63}{20}}} = -12.99$$

$-12.99 \notin [-1.44, 1.44]$

$\boxed{\therefore \mu_A \neq \mu_B}$

② $H_0: \mu_A = \mu_B$

$\bar{A} = \frac{180+\dots+195}{15} = 191.67$

$\bar{B} = \frac{210+235}{16} = 222.5$

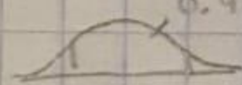
$S_A^2 = \frac{1}{14}(A_i - \bar{A})^2 = 1933.33$ $\quad \frac{S_A^2}{n} = 128.88$

$S_B^2 = \frac{1}{15}(B_i - \bar{B})^2 = 1000$ $\quad \frac{S_B^2}{n} = 62.5$

$$\nu = \frac{(128.88 + 62.5)^2}{\frac{128.88}{14} + \frac{62.5}{15}} = 38.55$$

$\nu = 39$

$0.95 \rightarrow \frac{0.05}{2} = 0.025$



$t_{39, 0.025} = 2.023$

$$T = \frac{191.67 - 222.5}{\sqrt{\frac{1933.33}{15} + \frac{1000}{16}}} = -3.78$$

$-3.78 \notin [-2.023, 2.023]$

$\boxed{\therefore \mu_A \neq \mu_B}$