

continuando con el ejercicio 10.29,

$$\beta = P\left(\frac{\hat{p} - p_a}{\frac{\sigma}{\sqrt{n}}}\right) \geq \frac{0.1342 - 0.15}{\sqrt{\frac{(0.15)(0.85)}{100}}} = P(Z \geq -0.442) =$$

$$= 1 - 0.33 = \underline{0.67}$$

Determine el valor β del ejercicio visto en clases
Ejemplo 10.6, consideremos $p_a = 0.15$

Sol

Recordemos que $n = 100, \alpha = 0.01$,

$$H_0: p = 0.10$$

$$H_a: p > 0.10$$

$$Z_\alpha = Z_{0.01} = \underline{2.33}$$

$$Z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

$$\frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}} > 2.33 \Rightarrow \hat{p} > p_0 + 2.33 \left(\sqrt{\frac{p_0(1-p_0)}{n}} \right) \Rightarrow$$

$$\Rightarrow \hat{p} > 0.1 + 2.33 \left(\sqrt{\frac{0.1(0.9)}{100}} \right) = \underline{0.1699}$$

$$\beta = P\left(\frac{\hat{p} - p_a}{\frac{\sigma}{\sqrt{n}}}\right) \leq \frac{0.1699 - 0.15}{\sqrt{\frac{(0.15)(0.85)}{100}}} = P(Z \leq 0.557)$$

$$\approx 1 - 0.2877 = 0.7123$$

