

Rúbrica C3-P3

$$P3 \sim N(\mu, \sigma^2), \quad n=25, \quad \bar{x}=14, \quad s^2=0,9,$$

$$a) \quad T = \frac{\bar{X} - \mu}{S/\sqrt{n}} \quad P(-a < T < a) = 0,95 \quad a = t_{0,025} = 2,064$$

gl = 24 = n - 1 (c.s.)
se usa T_{student}

$$P\left(\bar{X} - t_{0,025} \left(\frac{S}{\sqrt{n}}\right) < \mu < \bar{X} + t_{0,025} \left(\frac{S}{\sqrt{n}}\right)\right) = 0,95$$

$$I.C.: \left[14 - 2,064 \left(\frac{\sqrt{0,9}}{\sqrt{25}}\right), 14 + 2,064 \left(\frac{\sqrt{0,9}}{\sqrt{25}}\right) \right] \quad d = 2,064 \left(\frac{\sqrt{0,9}}{\sqrt{25}}\right)$$

$$b) \quad \text{Se usa } Z, \quad Z = \frac{\bar{X} - \mu}{\sigma/\sqrt{n}} \quad P(-a < Z < a) = 0,95 \quad a = Z_{0,025} = 1,96$$

(0.5)

$$P\left(\bar{X} - Z_{0,025} \left(\frac{\sigma}{\sqrt{n}}\right) < \mu < \bar{X} + Z_{0,025} \left(\frac{\sigma}{\sqrt{n}}\right)\right) = 0,95$$

$$I.C.: \left[14 - 1,96 \left(\frac{1}{\sqrt{25}}\right), 14 + 1,96 \left(\frac{1}{\sqrt{25}}\right) \right] \quad d = 1,96 \left(\frac{1}{\sqrt{25}}\right)$$

$$c) \quad d = 2 \cdot 1,96 \cdot \frac{1}{\sqrt{25}} \quad d^* = 0,8 \cdot 2 \cdot 1,96 \cdot \frac{1}{\sqrt{25}} \quad (1)$$

$$\frac{1}{\sqrt{n}} = \frac{0,8}{\sqrt{25}} \quad n = \frac{25}{0,8^2} \quad (1)$$

$$\text{si buscamos } n = \left\lceil \frac{25}{0,8^2} \right\rceil = 40$$