LESSON 8

Ex. 1

$H_0: \mu = \bar{X} \rightarrow H_0: 80 = 87$

$\mu = 80$

$n = 120$

$\bar{X} = 87$

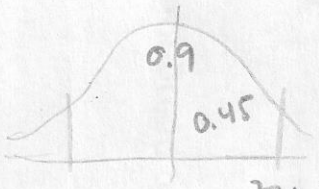
$S^2 = 64 \rightarrow S = 8$

$CL = 90\%$

$$z_0 = \frac{\bar{X} - \mu}{\sigma_{\bar{x}}} = \frac{87 - 80}{0.73} = 9.5$$

$$\sigma_{\bar{x}} = \frac{S}{\sqrt{n-1}} = \frac{8}{\sqrt{120-1}} = 0.73$$

$z_{\alpha/2} = 1.65$



$z_{\alpha/2} = 1.65$

$z_0 \quad z_{\alpha/2}$

$9.5 > 1.65 - H_0$

- The first statement can not be considered true

Ex 2

$H_0: \mu = \bar{X} \rightarrow H_0: 10 = 9$

$\bar{X} = 9$

$S^2 = 25 \rightarrow S = 5$

$\mu = 10$

$n = 31$

$\alpha = 0.05$

$$z_0 = \frac{\bar{X} - \mu}{\sigma_{\bar{x}}} = \frac{9 - 10}{0.91} = 1.1$$

$$\sigma_{\bar{x}} = \frac{S}{\sqrt{n-1}} = \frac{5}{\sqrt{31-1}} = 0.91$$

$z_0 \quad z_{\alpha/2}$

$1.1 < 1.96 - H_0$

- This rat is not different to others

Ex 3

$H_0: \pi = p \rightarrow H_0: 0.1 = 0.13$

$\pi = \frac{1}{10} = 0.1$

$n = 120$

$p = \frac{2}{15} = 0.13$

$\alpha = 0.01$

$$z_0 = \frac{p - \pi}{\sigma_p} = \frac{0.13 - 0.1}{0.027} = 1.11$$

$$\sigma_p = \sqrt{\frac{\pi(1-\pi)}{n}} = \sqrt{\frac{0.1(1-0.1)}{120}} = 0.027$$

$z_0 \quad z_{\alpha/2}$

$1.11 < 2.58 \; H_0$

- Statistics can be considered correct.