04/17/2019

Final

13th May

Monday 11:00 - 01:30

project #2 due Monday Apr 29th.

Friday 19th - no class.

Example I

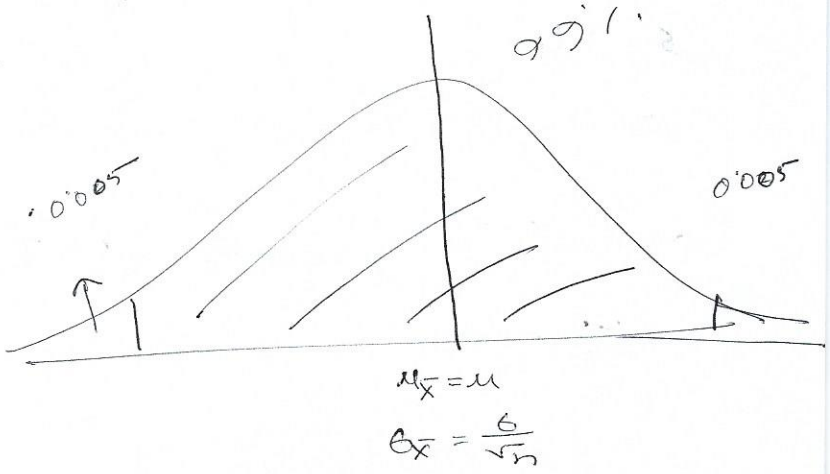
$n = 50$

$\bar{x} = 5000$

$\sigma = 100$

Normally distributed.

CI = 99%



$$\bar{x} \pm z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

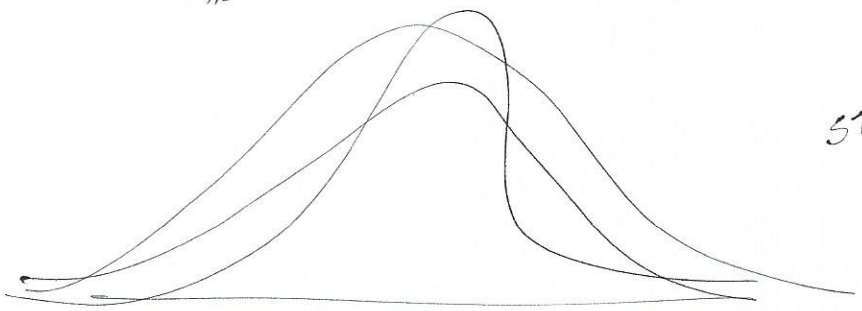
$$5000 \pm 2.576 \frac{100}{\sqrt{50}}$$

$$5000 \pm 36.43014$$

$$4963.5698 < \mu < 5036.43014$$

99% of between this value (4963.5698 to 5036.43014)

σ unknown, use t-distribution.



shape depends on sample size.

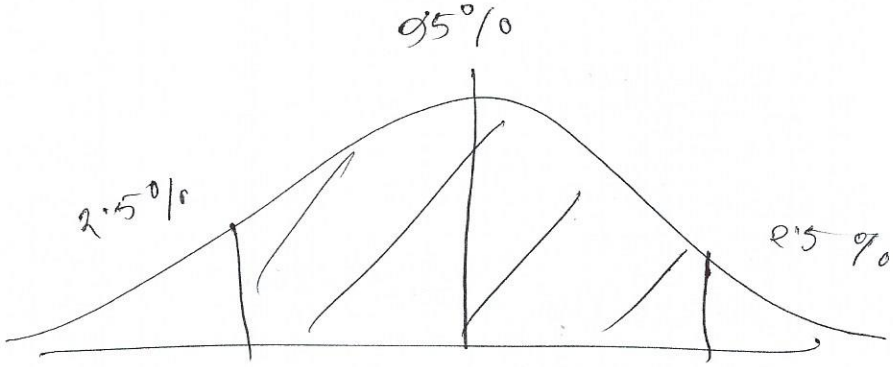
big sample size, t-distribution approaches standard normal.

2. $n = 25$

a) $\bar{x} = 6.4$

$s = 1.4$

CI = 95%.



degrees of freedom. $(25-1) = 24$

$t_{.05} = 2.064$

$$CI = \bar{X} \pm t_{\alpha/2} \frac{s}{\sqrt{n}}$$

$$= 6.4 \pm 2.064 * \frac{1.4}{\sqrt{25}}$$

$$= 6.4 \pm .57792$$

$(5.82208 \text{ to } 6.97792)$

b. Underlying pop^n is approximately Normal.

c. The mean length of stay of patients is between $(5.82208 \text{ to } 6.97792)$

3. $n = 50$

$\bar{x} = 18.3$

$sd = 2.7$

CI = 99%.

a. $\bar{x} \pm t_{\alpha/2} \frac{2.7}{\sqrt{50}}$

$= 18.3 \pm 2.680 \frac{2.7}{\sqrt{50}}$ → 2.704 because it's closer to 40.

$= 18.3 \pm 1.0324$

$= (17.2675 \text{ to } 19.3324)$