

07/30/2019

POP<sup>n</sup>

$\mu$

6

Sampling

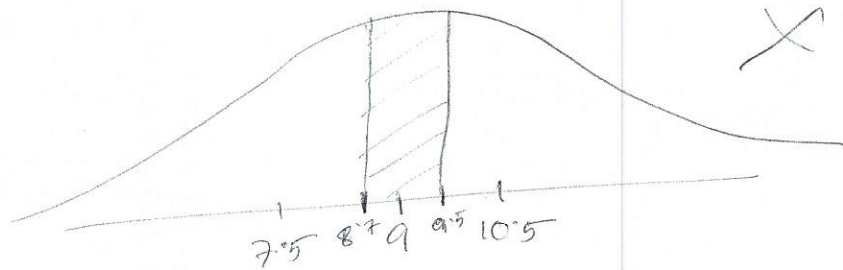
$\mu_x$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

std error

Ex 3

$n = 30$

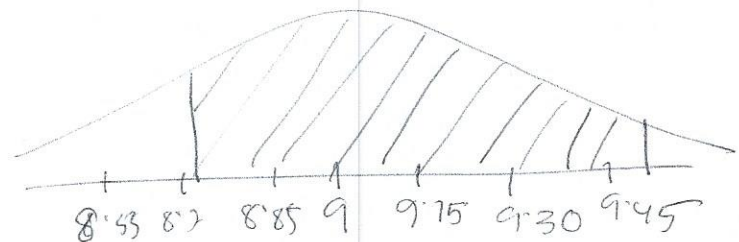


$$\frac{x - \mu}{\sigma / \sqrt{n}}$$

$$n = 100$$

$$\mu = 9$$

$$\sigma_{\bar{x}} = \frac{1.5}{\sqrt{100}} = 0.15$$



$$z_1 = \frac{8.7 - 9}{0.15} = 2.00$$

$$z_2 = \frac{9.45 - 9}{0.15} = 3.33$$

$$P(8.7 < \bar{x} < 9.5) = P(-2 < z < 3.33) = 0.9996 - 0.0228 = 0.9768$$

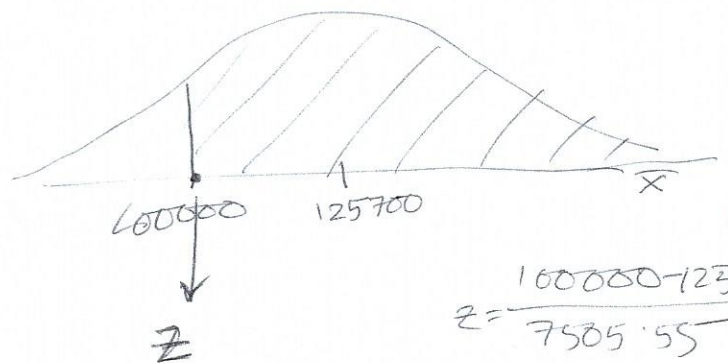
The prob that the mean time adults between 18 & 24 yrs old spend the time reading newspaper is about 0.9768

b) Sale prices are normally distributed

$$\mu = \mu_x = 125700$$

$$\sigma = 26000$$

$$\sigma_{\bar{x}} = \frac{26000}{\sqrt{12}} \approx 7505.55$$



$$z = \frac{100000 - 125700}{7505.55} \approx -3.42$$

$$P(\bar{x} > 100000) = P(z > -3.42) = 1 - 0.0003 = 0.9997 \text{ (99.97\%)}$$

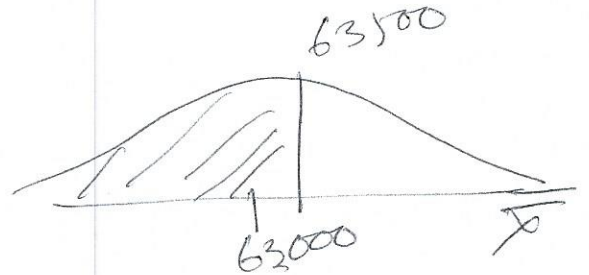
$$n > 30$$

$$\mu = \mu_x = 63000$$

$$b = 1700$$

$$b_{\bar{x}} = \frac{1700}{\sqrt{35}} = 287.35$$

$$z = \frac{63500 - 63000}{287.35} \approx 1.74 \rightarrow 0.9591 = 95.91\%$$



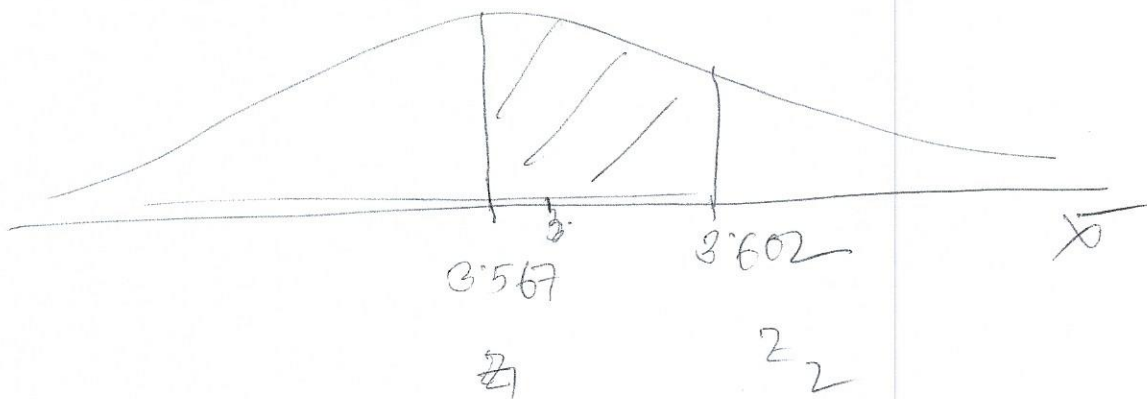
The probab that the mean annual salary of the sample is less than \$63500 is about 0.9591.

d)  $\mu = 3.567$

$$b = 0.008$$

$$b_{\bar{x}} = \frac{0.008}{\sqrt{38}} = 0.001$$

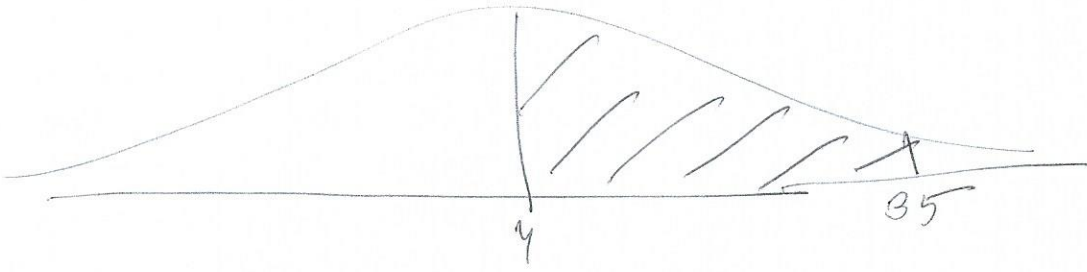
$$n = 38$$



$$P(3.571 < \bar{x} < 3.602) = P(z_1 < z < z_2)$$

$$z_1 = \frac{3.571 - 3.567}{0.001} \approx 4.00$$

$$z_2 = \frac{3.602 - 3.567}{0.001} \approx 35.00$$



$$P(4 < Z < 35) = 0.000001$$