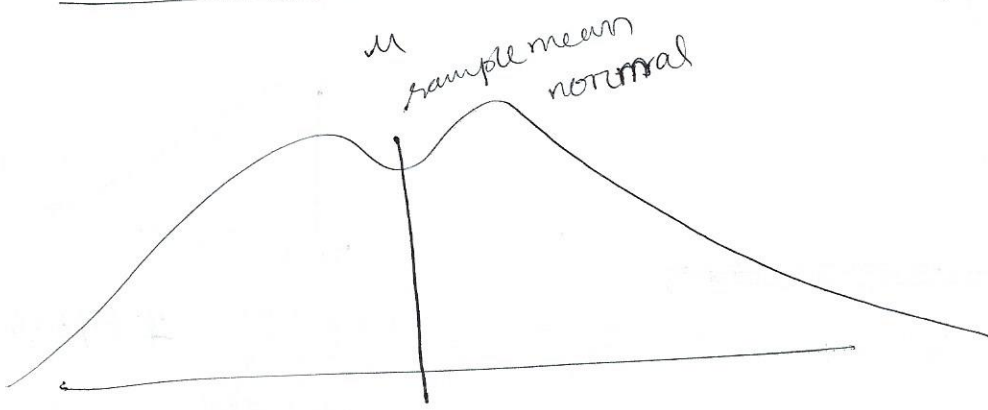
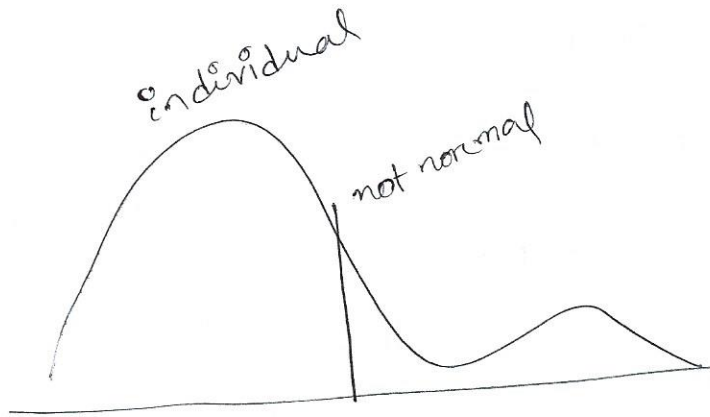


04/12/2019

Central Limit Theorem

If a sufficiently large ($n > 30$)



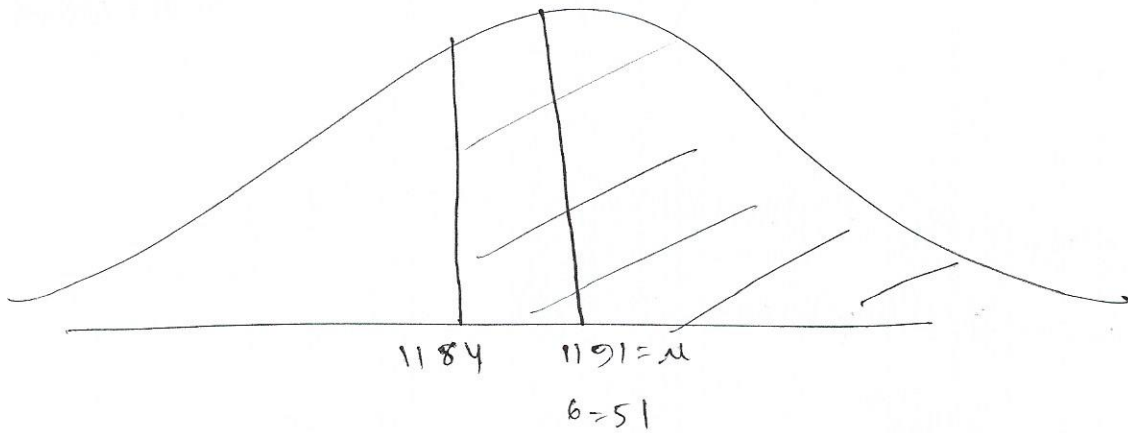
$$\mu_{\bar{x}} = \mu$$

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

4. a) $\text{var} = \sigma^2 = 2601 = 51$
mean, $\mu = 1191$

2

$$z = \frac{x - \mu}{\sigma}$$
$$= \frac{1184 - 1191}{51} = \frac{-7}{51} = -0.1372$$

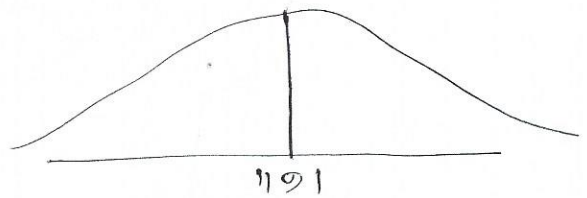


$$z = -0.1372 = -0.14$$

~~0.4488~~ $P(Z) = 0.4443$

$$(1 - 0.4443) = 0.5557$$

b) $n = 167$



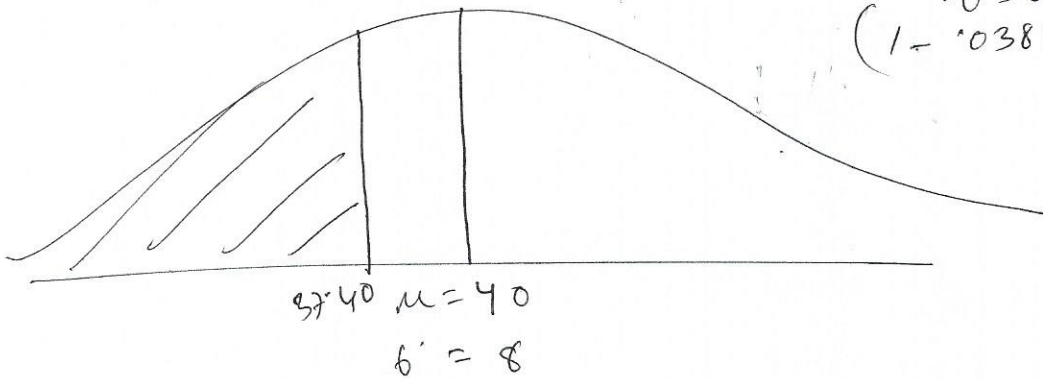
~~$0.5557 \times 167 = 92.5019$~~

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}} = \frac{51}{\sqrt{167}} = 3.9464$$

$$z = \frac{\bar{x} - \mu_{\bar{x}}}{\sigma_{\bar{x}}} = \frac{1184 - 1191}{3.9464} = -0.77386$$

~~0.3083~~
 $(1 - 0.3836) = 0.6164$

5.



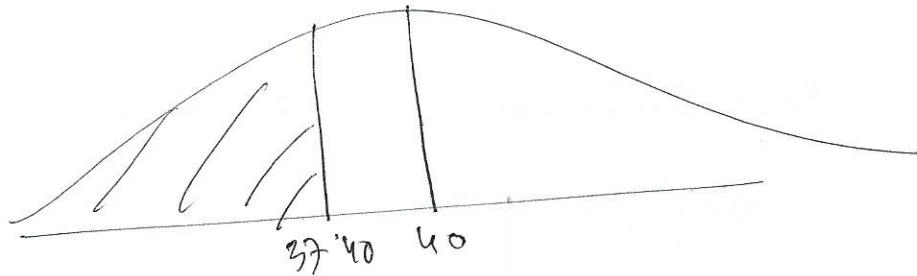
a.

$$z = \frac{37.4 - 40}{8} = -0.325$$

~~0.3709~~

b) $n = 49$

$$\frac{6}{\sqrt{n}} = \frac{8}{\sqrt{49}} = \frac{8}{7} = 1.1428$$



$$z = \frac{37.40 - 40}{1.1428}$$

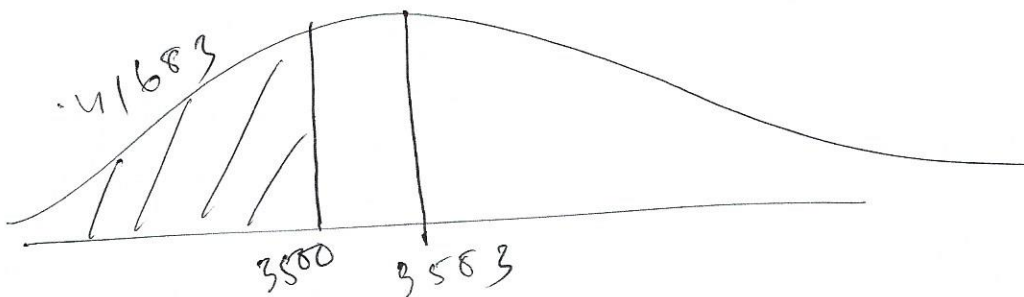
$$= -2.2751$$

$$= -2.28$$

$$= 0.01130$$

6. $\mu = 3583$

$$\sigma = 162409 \Rightarrow \sigma = 403$$



$$z = \frac{3500 - 3583}{403} = -0.2059$$

$$= -0.21$$

From z-table

$$\boxed{0.41683}$$

$$b. \frac{\bar{G}_x}{\sqrt{n}} = \frac{403}{\sqrt{41}} = \frac{403}{6.403} = 62.9392$$

$$z = \frac{3500 - 3583}{62.9392} = -1.318$$
$$= -1.32$$

From z-table, .09342

