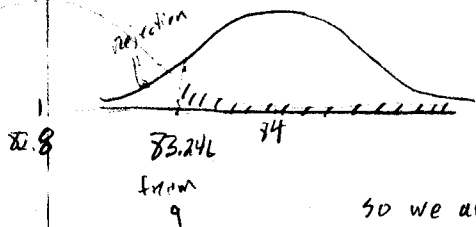


5. a) what if \bar{x} so that
$$\frac{\bar{x} - 84}{2.9/\sqrt{40}} \geq -1.645$$

$$\bar{x} - 84 \geq -0.75428$$

b)
$$\bar{x} < 83.246 \text{ to reject } H_0$$



so $P[\text{accept } H_0 \text{ when } H_0 \text{ is false}] = P$

so we are looking at $P[\bar{x} \geq 83.246]$ when $\mu = 82.8$

$$= P\left[z > \frac{83.246 - 82.8}{2.9/\sqrt{40}}\right] = P[z > .97] = .5 - .3340 = \underline{.1660}$$

same steps and you find

power = .834

if $\mu = 82.4$

$$P[\bar{x} > 83.246] = .0322$$

$$\text{power} = .9678$$

if $\mu = 82.6$

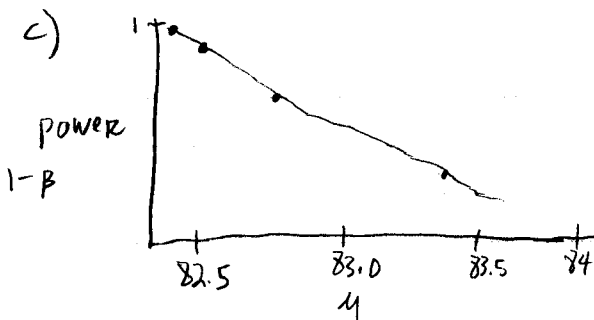
$$P[\bar{x} > 83.246] = .0793$$

$$\text{power} = .9207$$

if $\mu = 83.4$

$$P[\bar{x} > 83.246] = .6331$$

$$\text{power} = .3669$$



16 $H_0: \mu = 94$ $n = 52$ $\bar{x} = 92.9$ $s = 4.1$

$H_A: \mu < 94$

a) $z_{obs} = \frac{92.9 - 94}{4.1/\sqrt{52}} = -1.93$

so $p\text{-value} = .5 - .4732 = .0268$ and because 1 sided don't multiply

b) $\alpha = .05$

$\alpha > p\text{-value} \rightarrow$ we could reject H_0

statistically we can conclude $\mu < 94$.

25 $n = 40$ $\bar{x} = 930$ $\sigma = 2000$

a) $H_0: \mu = 800$

$H_A: \mu > 800$

$z_{obs} = \frac{930 - 800}{2000/\sqrt{40}} = .41$

$z_{crit} = 1.645$
1 side
 $\alpha = .05$

$z_{obs} < z_{crit}$ fail to reject

b) $z_{obs} = .41$

$\rightarrow .41$

go to table $p = .5 - .1591 = .3409$

one sided
so we
are done

we would reject H_0 for any sig level greater than .3409

22 for 8.12 z_{obs} was .16 and it was a one tail test

$p\text{-value} = P[Z > .16] = .5 - .0636 = .4364$

for any α greater than .4364 reject the null for anything less
tail to reject