16-18

a) prop. of all adult Amer. who have given to a charity

b) $.789 \pm 2.576\sqrt{\frac{.789(1-.789)}{250}}$

$.789 \pm .0665$

$(.721, .855)$

$1-.99=\frac{.01}{2}$

$=.005$

c) $.789 \pm .047$ $(.743, .837)$

d) $.789 \pm .033$ $(.756, .822)$

e) $.789 \pm .0235$ $(.765, .813)$

f) as n inc., m.o.e. dec.

g) 4 X n → cut m.o.e. in half

16.21

a) Andrew $\hat{p}=.4$ Should be the midpt.

b) Andrew (.558, .682) Becky (.611, .779)

$\frac{.558+.682}{2}=.62$ $\hat{p}=.62$ $\hat{p}=.695$

c) $.682-.62=.062$ m.o.e. = .062 $.779-.695=.084$ m.o.e. = .084

d) don't know conf. level (z^*)

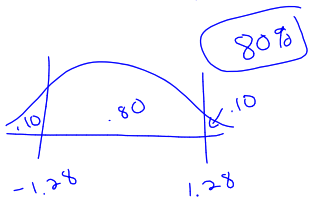
e) $n=100$ $n=200$

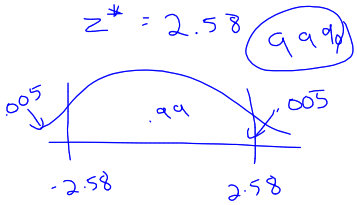
$z^*\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}=$ m.o.e.

$z^*\sqrt{\frac{.62(1-.62)}{100}}=.062$ $z^*\sqrt{\frac{.695(1-.695)}{200}}=.084$

$z^*(.0485)=.062$ $z^*(.033)=.084$

$z^*=1.28$ $z^*=2.58$





f) Becky (.533, .635) Andrew (.550, .602)

$\hat{p}=.576$ $\left(\frac{.533+.635}{2}\right)$

m.o.e = .026 $(.635-.576)$

$.576\pm.026$ $.584\pm.051$

g) $n=1000$ is Becky (narrower int.)

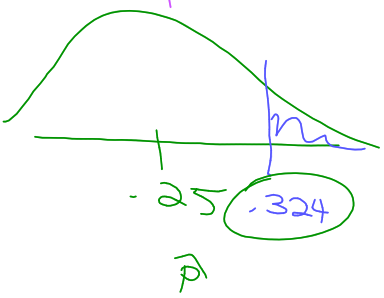
h) Both n => same conf. level (90%)

17-2

p = the prop. of all students that would choose RF

$H_0: p = .25$ (each time = likely)

$H_a: p > .25$ (more choose RF)



$\sigma_{\hat{p}} = \sqrt{\frac{.25(1-.25)}{74}} = .0503$

Check cond. (see 17-1)

$\hat{p} = \frac{24}{74} = .324$

$z = \frac{.324 - .25}{.0503} = 1.47$

$P(z > 1.47) = .0708$ ← p-value

$\alpha = .05$ ← sign. level

with a p-value of .0708, (.0708 > .05)
this is not sign. at .05 level,
So I fail to reject H_0.

Not enough evid. to prove more choose RF.