17-21

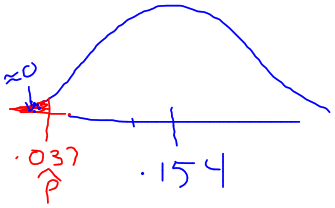
$\hat{p} = \frac{15}{405} = .037$

$n = 405$

a) p =

b) $H_0: p = .154$ H.... hiring at a rate = to pop.

$H_a: p < .154$ disc. → hiring sign. less than the pop.



$\sqrt{\frac{.154(1-.154)}{405}} = .0179$

• n is large

$405(.154) \geq 10$ np ≥ 10

≥ 10

$405(1-.154) \geq 10$ n(1−p) ≥ 10

≥ 10

* SRS from pop. of int
• assume the 405 is an SRS of teachers in the county

$z = \frac{.037 - .154}{.0179} = -6.5$

p-value = $Pr(z < -6.5) \approx 0$

with a p-value ≈ 0, this is sign. at the .01 level, so I reject H_0. Therefore, there is evid. that H... is discriminating (hiring at a rate < available)

18-7

a) 90% (.769, .806)

b) 99% (.759, .817)

c) $\alpha = .01$ $H_0: p = .75$ $H_a: p \neq .75$ .75 not in 99% C.I. Reject H_0 / p-value sign. at $\alpha = .01$

d) $\alpha = .10$ $H_0: p = .8$ $H_a: p \neq .8$ .8 is in 90% C.I. fail to reject H_0 @ $\alpha = .10$