

30. $H_0: p = 0.50$ $H_a: p > 0.50$ $p =$ prop of residents who support 1% increase to fix roads
b. (not 'a' because 'a' suggests that there could be evidence to support H_0)

31. C

32. E

p.608-610 85, 87, 89, 93

85. Power - is the probability that a test will find convincing evidence for H_a (alternative) when a specific alternative value is true

So a power value of 0.764 means there is a 76.4% chance that the company will find convincing evidence that $H_a: p > 0.08$, if the true proportion of potatoes with blemishes in a given truckload is $p = 0.11$.

87. a) if $\uparrow \alpha$ to 0.10 then $p \downarrow \therefore$ Power \uparrow
if you increase α it is easier to reject H_0 in favor of H_a . Power is when you reject H_0 in favor of H_a correctly.

b) if $n \downarrow$ 250 instead of 500 then variability goes \uparrow more overlap
Power \downarrow

c) $p = 0.10$ instead of $p = 0.11$, effect size \downarrow , then less distance between the parameters \therefore more overlap \rightarrow Power \downarrow
Harder to detect a difference between the parameters.

89. a) Larger α increases probability of a Type I error.
More easily reject H_0 when H_0 is true.
You send potatoes back when you shouldn't.

b) Larger sample takes more time + money.

93. a) Power = $1 - \beta$ (Prob Type II error)
Power = $1 - 0.14 = 0.86$

b) Prob of Type I Error = α $\alpha = 0.01$