

Section 7.1: Tests of Hypothesis

Wednesday, March 7, 2018

4:53 PM

for Large Samples

hypothesis testing - a procedure that allows you to draw conclusions / make decisions based on sample data

procedure for hypothesis testing:

- ① state the null hypothesis
- ② state the alternative hypothesis
- ③ calculate test-statistic and p-value
- ④ examine rejection region
- ⑤ draw conclusion

note: like a court trial

(defendant is innocent)

(defendant is guilty)

(present evidence)

(does the evidence support #1? or #2?)

verdict: innocent or guilty

so: either "reject H_0 " so H_a must be true

↑
null hypothesis

↑
alternative hypothesis

or "accept H_0 " so H_0 must be true

note: with hypothesis testing, H_0 always involves an equality

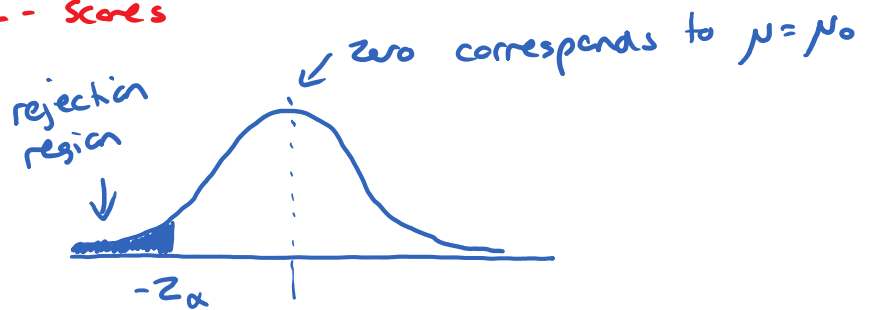
suppose we have a mean from our sample \bar{x} and we are comparing it to a population mean μ_0

suppose we have enough info to calculate a z-score

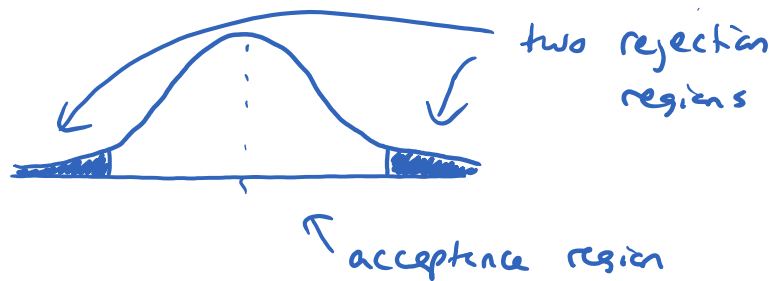
pictures:

comparing z-scores

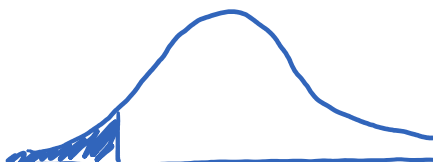
one-tailed
lower



two-tailed



comparing p-values





↑
you calculate this z-score
and then work out what the
shaded probability is

and then you compare it with α

one-tailed: is $p < \alpha$? if yes, reject H_0

two-tailed is $p < \alpha/2$? if yes, reject H_0