You test whether caffeine affects reaction time. You give one group two extra-grande double caffs from Starbucks, and one group decaf. Then you then measure their Reaction Times (normally distributed). Are the population mean RTs different based on caffeine?

 H0 =

 HA =

 Your data:

 decaf extra caff

 2.25 1.75

 2.00 1.90

 1.95 1.70

 2.0 1.05

 2.19 1.82

 2.30 1.75

 t stat =

 df =

 probability of your t =

 What decisions do you make about your Null?

What does this mean about the difference between your population averages?

Describe the error you might be making.

ANSWERS

H0 : Population mean RTs for caffeinated and decaf people are the same

 (caffeine has no effect)

HA: Population mean RTs for caffeinated and decaf people are different

 (caffeine has an effect)

*t* = 3.29

df = 10

*p* = .82%

Reject H0

Population mean RTs are probably different because of caffeine (caffeine probably influences RT)

The population means might be the same (your sample differences were coincidence).