10) One day you sample 19 idiotic republicans from a population and measure both their recognition and their shopping. You calculate that their recognition correlates with shopping with $r = -0.43$. Using an alpha value of $\alpha = 0.01$, is this observed correlation significantly different than zero?

Test for one correlation $p < 0$

5) Your advisor asks you to sample 40 balloons and 16 dinosaurs from their populations and measure both their price and their traffic. You calculate that for balloons their price correlates with traffic with $0.72$ and for dinosaurs the correlation is $0.88$.

Using an alpha value of $\alpha = 0.01$, is the observed correlation for balloons significantly less than for dinosaurs?

*Test for two correlations $p < 0.01$*

7) The jewelry of smoggy and obedient musical groups

On a dare, you measure the jewelry of 75 musical groups under two conditions: 'smoggy' and 'obedient'. You then subtract the jewelry of the 'obedient' from the 'smoggy' conditions for each musical groups and obtain a mean pair-wise difference of 3.25 with a standard deviation is 14.2087.

Using an alpha value of 0.01, is the jewelry from the 'smoggy' condition significantly different than from the 'obedient' condition?

What is the effect size?

What is the observed power of this test?

7) For a 499 project you sample the damage of 20 yielding chickens from a population and obtain a mean damage of 35.43 and a standard deviation of 9.2876.

Using an alpha value of $\alpha = 0.01$, is this observed mean significantly greater than an expected damage of 33?

What is the effect size?

Is the effect size small, medium or large?

$t$-test for one mean

2) You get a grant to measure the baggage of 55 overrated and 18 curved underwear and obtain for overrated underwear a mean baggage of 13.4 and a standard deviation of 9.9228, and for curved underwear a mean of 20.8 and a standard deviation of 9.8979.

Make a bar graph of the means with error bars representing the standard error of the means.

Using an alpha value of 0.01, is the mean baggage of overrated underwear significantly different than for the curved underwear?

What is the effect size?

What is the observed power of this test?

$t$-test two independent means.