

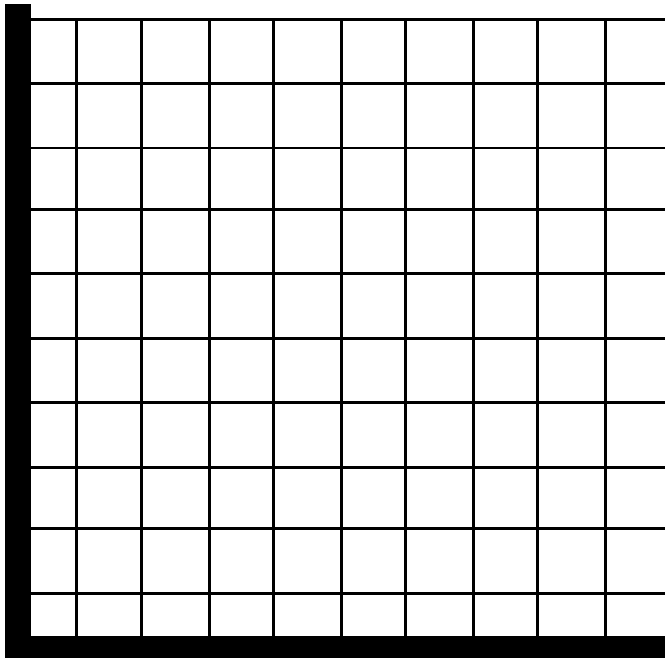
t for b

Psychology 3000
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Example

The scores of ten students on both a midterm and final exam in a statistics class are recorded the table below.

Student #	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Midterm	30	12	15	25	22	28	18	16	24	28
Final	27	13	10	17	19	25	20	12	22	26

**Optional Practice:**

- A) Draw a scatterplot
 B) Find the correlation (r) between Midterm and Final.
 C) Find the regression line for predicting Final scores (Y) from Midterms (X). Draw this on your scatterplot.

Solution to optional practice
Regression equation:

S^2 for Y : 34.96
 S^2 for X : 32.89
 S for X : 5.9127
 r : 0.942
 a : 0.1934
 b : 0.8673

Scientific Hypothesis:

There is a positive relationship between Midterm and Final Exam scores and that Final Exam scores can be predicted from Midterm Exam scores.

Is the Scientific Hypothesis Directional or Non-directional?

Statistical Hypotheses $H_0:$ $H_1:$

What do we expect the value of t to be if H_0 is true?

Calculate statistics on the data: **S^2 for Y:** 34.96 **S^2 for X:** 32.89**S for X:** 5.9127**r:** 8942**a:** 0.1934**b:** **0.8673****Formula for the t test to evaluate the significance of b:** $t =$

Substitute the correct descriptive statistics into t formula

 $t =$ $t =$

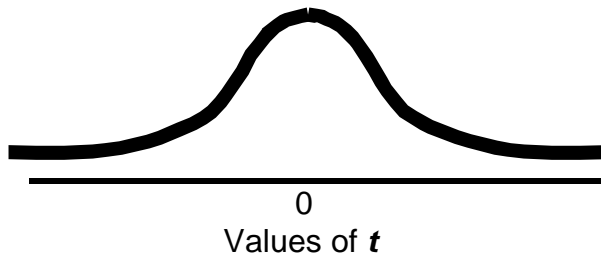
Find critical value of t

Set α equal to

df =

One or two tailed?

Critical value =

Statistical Conclusion Validity

Sampling Distribution of t



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Sample Statistic = t =