Suppose a 95% confidence interval for the true regression slope is obtained as (-7.453, -0.947) from a sample of 100 x-y points. What is the p-value for the test of the following hypotheses?

H0:β1=−10Ha:β1≠−10



0.1582883



0.9822173

**Correct!**



0.0006175379



0.03299713

The margin of error can be found from the confidence interval by using (-7.453 - -0.947)/2 = -3.253. Similarly, the estimate of the slope can be found by finding the middle of the confidence interval (-7.453 + -0.947)/2 = -4.2.

Then, the critical value of the margin of error can be found using qt(1-0.05/2, 100-2) = 1.984467.

This allows us to recover just the standard error of the slope, which is margin of error / critical value = -3.253/1.984467 = -1.639231.

Thus, t = (estimate - hypothesized)/std. error = (-4.2 - -10)/-1.639231 = -3.538244, and the corresponding p-value is clearly very small, but can be computed exactly by pt(-3.538244, 98)\*2 which gives p-value = 0.0006175379.