Topic: Significance level and type I and II errors

Question: As the alpha level gets lower, which error rate also gets lower?

Answer choices:

A The Type I error rate

B The Type II error rate

C Both the Type I and Type II error rates

D Neither the Type I nor Type II error rates

Solution: A

The Type I error rate is the α level. The lower the alpha level, the lower the Type I error rate.

Topic: Significance level and type I and II errors

Question: It's been shown many times that on a certain memory test, recognition (recognizing something familiar) is substantially better than recall (pulling something from memory). WE run our own test but fail to reject the null hypothesis that recall and recognition produce the same results. What type of error did we make?

Answer choices:

A Type I error

B Type II error

C Both a Type I and Type II error

D Neither a Type I nor Type II error

Solution: B

There's a difference in the population between recognition and recall, but we didn't find a significant difference in our sample. Which means the null hypothesis was false, but we failed to reject it. Failing to reject a false null hypothesis is a Type II error.

Topic: Significance level and type I and II errors

Question: In a population, there's no difference between men and women on a certain test. However, we found a significant difference in our sample and therefore rejected the null hypothesis. What type of error did we make?

Answer choices:

A Type I error

B Type II error

C Both a Type I and Type II error

D Neither a Type I nor Type II error

Solution: A

There's no difference in the population, but we found a difference in our sample. Which means the null hypothesis was true, but we rejected it, thinking it was false. Rejecting a true null hypothesis is a Type I error.