The following problem is modified from Haller and Krauss (2002): “Suppose you have a drug that you suspect may alter performance on a certain task. You compare the means of control and experimental groups (n=20 in each group). Further, suppose you use the independent means t-test and your result is (t = 2.7, df=18, p=0.0112). Consider these six interpretations of your results: ​

1. You have disproved the null hypothesis (that is, the hypothesis of no difference between the population means). ​
2. You have calculated the probability of the null hypothesis being true. ​
3. You have proved your experimental hypothesis (there is a difference between the population means). ​
4. You can deduce/calculate the probability of the experimental hypothesis being true from the provided results. ​
5. Assuming you decide to reject the null hypothesis, you know the probability that you are making the wrong decision. ​
6. You have a reliable experimental finding in the sense that if, hypothetically, you repeated the experiment many times, you would obtain a significant result on 99% of the replications. ​

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Send me a private chat message indicating which, if any, of these statements is false. It is possible that more than one statement is false.​