A one-sided hypothesis test is to be performed with a significance level of 0.05. Suppose that the null hypothesis is false. If a significance level of 0.01 were to be used instead of a significance level of 0.05, which of the following would be true?

A  Neither the probability of a Type II error nor the power of the test would change.

B  Both the probability of a Type II error and the power of the test would decrease.

C  Both the probability of a Type II error and the power of the test would increase.

D  The probability of a Type II error would decrease and the power of the test would increase.

E  The probability of a Type II error would increase and the power of the test would decrease.