

### Answer on Question #46507 – Math – Statistics and Probability

True or False. Justify

There is no difference between type I error and level of significance.

#### Answer

**False.** The significance level is the probability of a type I error, or rather, the presumed probability of such an event. In classic test theory a test is said to have significance level  $\alpha$  if  $P(\text{type I error}) \leq \alpha$ , meaning that the probability of a type I error is bounded by  $\alpha$ . However, tests that use approximations of one kind or another actually tend to have  $P(\text{type I error}) \approx \alpha$ , in which case the probability of a type I error can be larger than the nominal  $\alpha$ .