

NAME: 1st for turning in

STAT 226, Section D—Quiz 12 (4 pts.)

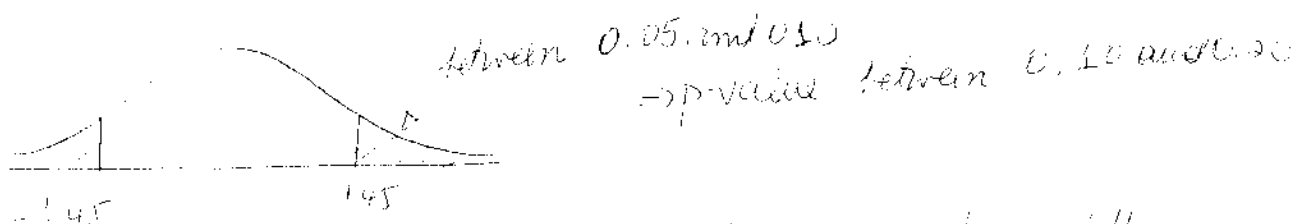
A paint is applied to tin panels and baked for 1 hour so that the mean index of hardness is 35.2. Suppose 18 test panels are painted and baked for 3 h, producing a sample mean index of hardness equal to 35.95 and standard deviation 2.2. Test (at the 5% significance level) the claim that longer baking does not affect hardness of the paint. For full credit, you have to show all your work, following the step-by-step procedure we have used for tests of hypothesis.

Sample size $n = 18$, $\bar{X} = 35.95$, $S = 2.2$
(σ is not known, estimated by s)
 \rightarrow will use t -distribution

$$H_0: \mu = 35.2 \quad H_a: \mu \neq 35.2 \quad \text{and } \alpha = 0.05$$

Test statistic $t = \frac{35.95 - 35.2}{2.2 / \sqrt{18}} = 1.45$

$$d.f. = 18 - 1 = 17$$



Since $\alpha = 0.05 < p\text{-value} \Rightarrow$ will reject H_0

~~There is~~ There is enough evidence that longer baking affects hardness of paint