→ Case 2 : σ is not known:

$$T_c = \frac{\bar{x} - \mu_0}{S_1 / \sqrt{n}}$$

$$S_1 = \frac{1}{n-1} \sum_{i=1}^{n} \sqrt{(x_i - \bar{x})^2}$$

→ 44.0, 51.9, 49.7, 40.0, 55.5,
33.0, 43.4, 41.3, 45.2, 40.7,
41.1, 49.1, 30.9, 45.2, 55.3,
52.1, 53.1, 38.8, 43.1, 35.2,
58.6, 49.8, 43.2, 47.9, 46.6

~ Is there evidence that mean time to prepare dinner is less than 48 minutes?

→ $H_0 : \mu \geq 48$

$H_1 : \mu < 48$

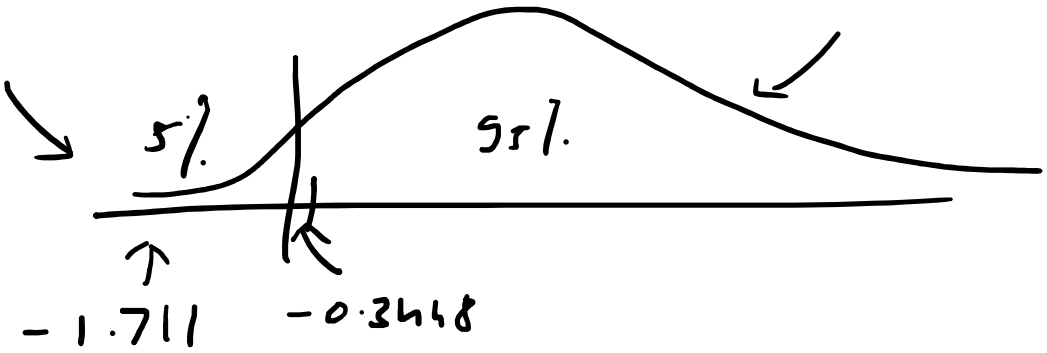
→ $n = 25$, $\bar{x} = 47.52$ & $S_1 = 6.9587$

→ $T_c = \frac{\bar{x} - \mu_0}{S_1 / \sqrt{n}} = \frac{47.52 - 48}{6.9587 / \sqrt{25}}$

$= -0.3448$

$\rightarrow$ D-o-F $= 25 - 1 = 24$

$\rightarrow$ 95% S.L $\alpha = 0.05$



$|-1.711| \quad |-0.3448|$

$+1.711 > 0.3448$

Critical > Test Statistic

Null Hypothesis is rejected & Alternative Hypothesis is accepted.

$\rightarrow$ The mean time to prepare dinner is less than 48 mins.

$\rightarrow$ Hypothesis Testing for Proportion: