

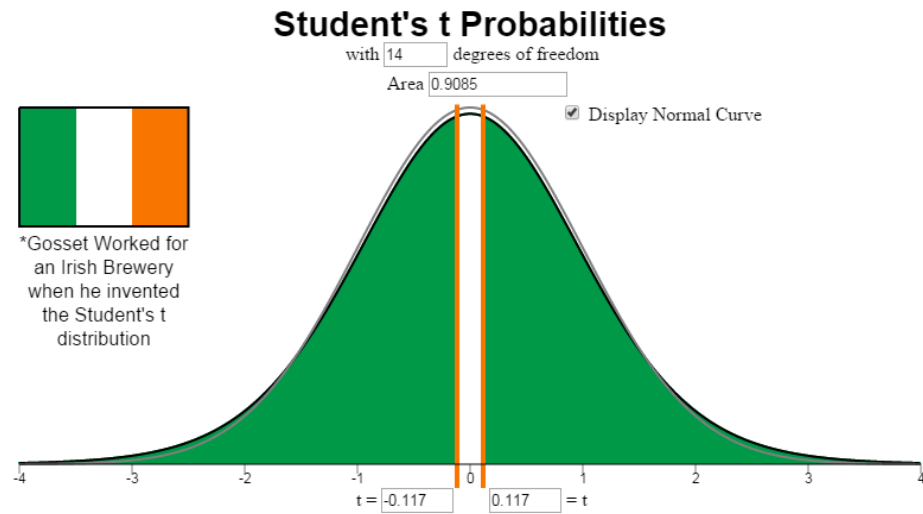
# Lesson 11: Inference for One Mean; Sigma unknown (Hypothesis Test)

## Preparation

## Solutions

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Problem	Part	Solution
1	-	<ul style="list-style-type: none"> <li>- Symmetrical</li> <li>- Mean of 0</li> <li>- Exact shape depends on the degrees of freedom</li> <li>- Bell Shaped</li> <li>- More area in the tails than the standard normal distribution</li> </ul>
2	-	$df = n - 1$ (that is sample size $- 1$ )
3	-	$\bar{x} - t^* \times \frac{s}{\sqrt{n}}, \bar{x} + t^* \times \frac{s}{\sqrt{n}}$
4	-	<ul style="list-style-type: none"> <li>- Sigma is not known</li> <li>- We compute a t-score from the Student t-distribution rather than a z-score from the normal distribution. (We cannot use the Normal Applet to compute t-scores.)</li> <li>- We must now consider degrees of freedom for the t-distribution where the normal distribution did not have degrees of freedom.</li> </ul>
5	-	$t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$
6	-	<ul style="list-style-type: none"> <li>- A simple random sample was drawn from a population.</li> <li>- <math>\bar{x}</math> is normally distributed.</li> </ul>
7	-	The mean is 46.733. The standard deviation is 8.827
8	-	It is a random sample from a population. The $\bar{x}$ 's are normally distributed
9	-	(41.845 , 51.622)
10	-	(39.948 , 53.518)
11	A	(41.845 , 51.622)
11	B	(39.948 , 53.518)
12	-	The margin of error for the confidence interval is smaller for a 95% confidence level than a 99% confidence level.
13	A	$H_o : \mu = 47$ $H_a : \mu \neq 47$
13	B	$t = -0.117$
13	C	$df = 14$



- 13      D
- 13      E
- 13      F
- 13      G

P-value = 0.909

fail to reject the null hypothesis

We have insufficient evidence to conclude that the mean age of this realtor's customers who are buying second homes, is different than the national average.

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