t Distributions

t_Distribution.tns

Name _____

Class _____

Problem 1 – Characteristics of the *t* Distribution

1.3: How does the *t* distribution for $n = 5$ (d.f. = 4) compare to the normal distribution?

1.4: What happens as *n* gets larger? Why?

Problem 2 – Comparing Areas

2.2: Use the **Integral** tool to find the areas bounded by (–3, 0) and (3, 0) on the *x*-axis.

Normal distribution: _____

t distribution: $n = 6$: _____ $n = 11$: _____

$n = 14$: _____ $n = 24$: _____

What happens as *n* changes? Why?

Problem 3 – Critical Values for a *t* Distribution

3.1: Use the **invt** command to find the critical values for a 95% confidence interval. (d.f. = $n - 1$)

$t_{\frac{\alpha}{2}}$, $n = 5$	$t_{\frac{\alpha}{2}}$, $n = 10$	$t_{\frac{\alpha}{2}}$, $n = 15$	$t_{\frac{\alpha}{2}}$, $n = 25$	$z_{\frac{\alpha}{2}}$

If any, what patterns did you find?

4.1: Predict how the following critical values will compare. Then find the values.

50% CI, $t_{\frac{\alpha}{2}}$, $n = 4$ and $n = 28$

80% CI, $t_{\frac{\alpha}{2}}$, $n = 4$ and $n = 28$

100% CI, $t_{\frac{\alpha}{2}}$, $n = 4$ and $n = 28$

Problem 4 – Constructing a Confidence Interval

5.2: What is the mean and standard deviation of the weights ($n = 10$)?

5.4: For 90% and 95% confidence, what is the critical value, margin of error, and CI?

5.5: Add the new weights to the list on page 4.3: 97, 104, 92, 96, 100, 105, 103, 95, 92, 109. What is the new mean and standard deviation ($n = 20$)?

5.6: For 90% and 95% confidence, what is the critical value, margin of error, and CI?