**Lesson 12.1**

**The quick brown fox jumped over the lazy dog**

**Mrs. Skaff typed this sentence into her iphone (no typos) in 10 seconds. She believes that her students are faster than her! Is she correct?**

**Data:**

**State:**

State Hypotheses:

State Alpha:

**Plan:**

Name Inference Procedure:

Check assumptions/Conditions:

**Calculate:**

Find test statistic:

Degrees of freedom:

Draw curve and shade Find the p-value from the

t-table (or calculator):

**Interpretation** (Be sure to state in terms of parameter)

**Paired t-test**

Let’s compare texting speeds for dominant vs. non-dominant hand!

**The quick brown fox jumped over the lazy dog**

**State:**

**Plan:**

Name Inference Procedure:

State Alpha:

State Hypotheses:

Check assumptions/conditions:

**Calculate:**

Find test statistic:

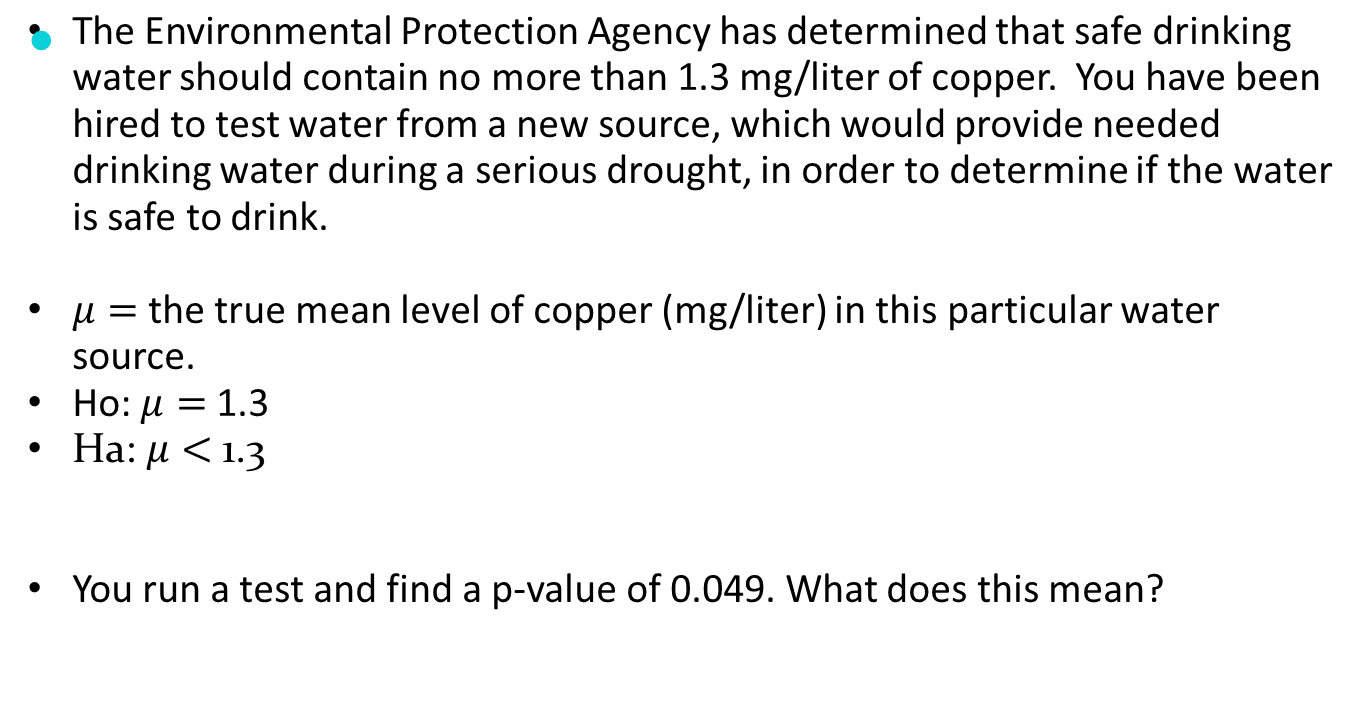
Degrees of freedom:

Draw curve and shade Find the p-value from the

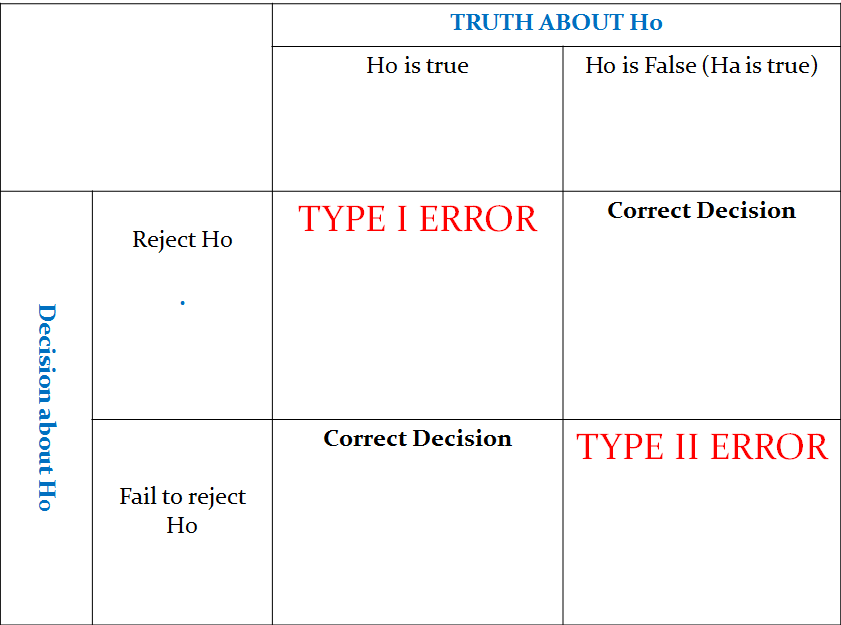
t-table (or calculator)::

**Interpretation** (Be sure to state in terms of parameter)

**Type I and Type II Error**

****We make a “**Type I Error”** when we incorrectly reject H0.

We make a **“Type II Error”** when we incorrectly fail to reject H0.



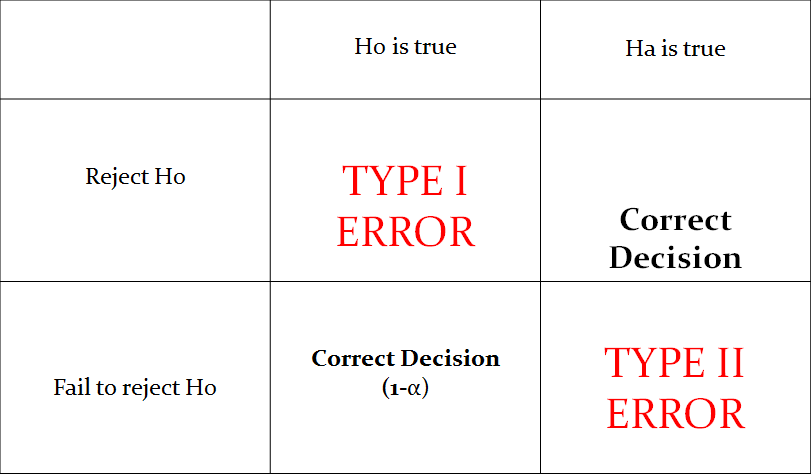
Typically, you will be asked to describe each error **and** state a consequence for each.

* Type I: **Inform the EPA that the water is safe to drink when it is actually UNSAFE!**
* Consequence:
* Type II: **Inform the EPA that the water is not safe to drink even though it really WAS safe.**
* Consequence:

Which error do you believe is more serious? Why?

If you had to choose and alpha level of α = 0.1, 0.05, or 0.01 which would you choose? Why?

**Error Probabilities**:



The “Power” of a test is the probability of correctly rejecting the null hypothesis

**How to increase the Power of a test:**