**Lesson Plan – Day 20**

**Lecture**

* Define a “conditional statement” as having 2 parts: a hypothesis & a conclusion. These statements usually come in “if-then” form.

Examples

1. If a fish is a shark, then it has a boneless skeleton.
2. If x2=16, then x=4.

* Review the concepts of:

Converse (switch if with then)

Inverse (negate conditional statement)

Contrapositive (negate converse)

Bi-Conditional (if and only if)

* Team Activity:

You just watched a five-minute movie scene from **Alice in Wonderland,** by Lewis Carroll. You may recall that there was a debate between Alice, the Mad Hatter, and the March Hare that went like this:

**“Then you should say what you mean, “ the March Hare went on. “I do,” Alice hastily replied, “at least I mean what I say—that’s the same thing, you know.” “Not the same thing a bit!” said the Hatter. “Why, you might just as well say that ‘I see what I eat’ is the same thing as ‘I eat what I see’!”**

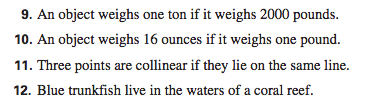
Your team must now discuss why the Mad Hatter is disputing with Alice over the precise use of language.

Students will be expected to:

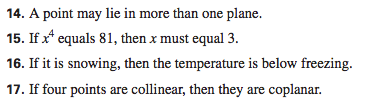
1. Turn each argument into a conditional statement, converse, inverse, and contrapositive.
2. Validate the Mad Hatter’s contention with real-life *examples*, or negate his argument with real-life *counterexamples*

**Assignment # 20**

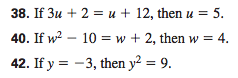
**Rewrite the conditional statements below in “if-then” form. Then, write a converse, inverse, and contrapositive for each:**



**Decide if the statements below are true or false. If false, then provide a counterexample:**



**Determine if the Algebraic statements below can be written as true bi-conditional statements. Use mathematical reasoning to show why or why not:**

****