Deductive Reasoning

1) Box each hypothesis, underline each conclusion below

If I practice math everyday, Then I will get into the college of my dreams.	If I miss the bus to school today, Then I will be late to geometry class.
If all dolphins are mammals, if all mammals have kidneys, then dolphins have kidneys.	If it is dangerous to drive on icy streets, if the streets are currently icy, then driving right now is dangerous.

2) Use just the underlined deductive reasoning in each box. Answer each question.

If furniture is made from wood, then it came from a tree. My desk is made out of wood. What can I say about where it came from? The desk came from a tree.
If something is alive, then it needs oxygen to breathe. You are are alive. What do you need to stay alive? You need oxygen to stay alive.
If statement X is true, the statement Y is false. Statement X is false. Is statement Y definitely true? Is it definitely false? We can't say, since we only know the conclusion for when X is true.

3) Write your own example of deductive reasoning. Be sure to include a hypothesis and a conclusion!

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4) Is the following example true? If not, give a counterexample

If an animal flies, then it is a bird. Not true, dragonflies fly.

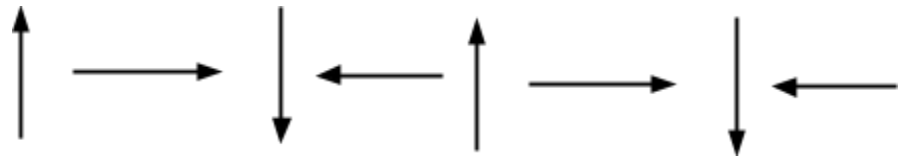
Inductive Reasoning

1) Inductive Reasoning is defined as reasoning by looking for patterns.

2) Look for the pattern in each example below. Use inductive reasoning to conclude what comes next.

3, 8, 13 18, 23, 28, 33, … **38**	1, 4, 9, 16, 25, 36
$\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \frac{1}{32}$	2, -4, 6, -8, 10, -12, 14

4 pointed star



Upward arrow

3) Use numbers or symbols to create two pattern that Mr. Gibson could solve with inductive reasoning.

“And”, “Or”, “If and Only If”

Word Bank - Use each phrase only once to make each statement below true

- **AND**
- **OR**
- **IF AND ONLY IF**

1. **If the student tries hard AND shows they understand material, then they pass geometry.**

2. **If you are disrespecting each other OR you are disrespecting yourself, then you are not meeting expectations.**

3. **IF AND ONLY IF the temperature is over 100 degrees, then it is very hot outside.**