* **Inductive Reasoning**

  * is based on observed patterns
  * uses specific examples to make general statements.
  * draws conclusions that are predictions or conjectures.
  * has conclusions that may or may not be valid.
  * can have a conclusion proven false by one counterexample.

* **Deductive Reasoning:**

  * is based on rules, definitions, and/or facts.
  * uses the rules, definitions, and/or facts to make statements about specific cases.
  * draws valid conclusions.
  * uses two main laws.
    - Law of Detachment
    - Law of Syllogism

**Counterexamples**

  * A counterexample can be used to prove that a conditional statement is false.

  **Example:** If a number is prime, it is **odd**.
  
  **Counterexample:** 2

  **Example 2:** If a geometric figure has 4 sides, then it is a rectangle.
  
  **Counterexample:** A trapezoid