

**Inductive logic** is drawing a conclusion based on a pattern. For example, if I see 4 or 5 football players in the hall and they have shaved their heads, I might conclude that ALL the football players have shaved their heads. Inductive logic can lead to false conclusions.

**Deductive logic** is drawing a conclusion based on a know true statement or rule. For example, if I know that  $x - 7 = -3$  then I conclude that  $x = 4$  because the addition property of equality lets me add 7 to both sides of the equation. Deductive logic will always work if used correctly. Geometry is based on deductive logic.

Classify each of the following as an inductive (I) or deductive (D) logic process.

- \_\_\_\_\_ 1. The first 4 times Susan ate peanuts, she became ill. Her mom concludes that she must have an allergy to peanuts.
- \_\_\_\_\_ 2. Karen is sixteen years old. She says, "In two more years, I'll be able to vote."
- \_\_\_\_\_ 3. Each time Ken comes home at 4:30, the paper is already there. Ken concludes the paper must come before 4:30.
- \_\_\_\_\_ 4. David has his homework done perfectly each Monday for the first 5 weeks of the semester. The teacher concludes that David must work hard on geometry over the weekends.
- \_\_\_\_\_ 5. If  $3x = 15$ , then  $x = 5$ .
- \_\_\_\_\_ 6. Jim knows that he is older than John. When Jim finds out that John is older than Jeff, he concludes that he is older than Jeff.
- \_\_\_\_\_ 7. 68,495 is divisible by 5.
- \_\_\_\_\_ 8. The first 3 houses in a subdivision have 9 foot ceilings. The real estate agent concludes that all houses in the subdivision have 9 foot ceilings.
- \_\_\_\_\_ 9. The next number in the series 2,3,6,... is 7.
- \_\_\_\_\_ 10. A teacher gives a quiz two Friday's in a row. The class concludes that there will be a quiz every Friday.
- \_\_\_\_\_ 11. The football coach has a policy that if a player is late for practice he cannot play in Friday's game. Mike was 30 minutes late for practice, so he concludes that he will not play on Friday.