

Topic 4-1: Inductive and Deductive Reasoning

Inductive Reasoning	Deductive Reasoning

Determine if the method of reasoning is inductive or deductive.

1. You observe that for the last 5 of 6 weeks, the school cafeteria has served chicken on Thursdays. Since tomorrow is Thursday, you conclude that the cafeteria will serve chicken.

Answer: _____

2. Since your lowest grade in History on any assignment or test is 92, you conclude that your average grade in History class is 92 or above.

Answer: _____

3. One of your car's tires is inflated to 40 psi. Since the side of the tire rates the maximum tire pressure at 35 psi, you conclude that the tire is over inflated.

Answer: _____

4. Bob the Big Bad Boxer has won his last 11 matches in less than 5 rounds. You conclude that he will win his next match in less than 5 rounds.

Answer: _____

5. Fred and Amanda both solved the same algebra problem. Fred's answer is $x = 2.5$ while Amanda's answer is $x = 5/2$. You conclude that both are correct.

6. Which of the following claims would be best expressed by **inductive reasoning**?

- A. Your first quiz grade usually indicates how you will do in the course.
- B. The final exam accounts for 30% of the course grade.
- C. Late papers will not be accepted.
- D. *Gravity's Rainbow* is required reading in your course.

7. Which of the following claims would be best expressed by **deductive reasoning**?

- A. Texas' population growth rate slowed last year.
- B. Texas residents appreciate their good weather.
- C. Texas residents are residents of the United States.
- D. More cars are registered in Texas than in any other state.

8. Which of the following arguments would lead to a **deductive conclusion**?

- A. There was a mild winter this year and previously whenever there's been a mild winter the cherry crop suffers.
- B. The cherry crop needs at least a week of freezing temperatures for best results, and this winter the temperature stayed several degrees above freezing.
- C. Paul noticed that whenever the skiing was good in the winter, the cherry crop was profitable, and this year the skiing was good.
- D. Not since 1972 have I seen a good cherry crop after a mild winter, and this winter has been mild.

Modern Day Sherlock Holmes

Profile 1:

Sergeant Sleuth, a seasoned detective of many years, is very familiar with convenience store robberies and has investigated many throughout his career. Based on his interviews with previous criminals who were convicted of similar crimes, Sergeant Sleuth recalls that over 85% of convenience store robberies in this particular city were committed by white males between the ages of 18-21 and who lived with a relative. Based on his knowledge of previous cases involving convenience store robberies, he recalls that most occur between the hours of 11:00 p.m. and 3:00a.m. at locations that are within walking distance of a housing complex.

Sergeant Sleuth submits a criminal profile of the perpetrator to aid in solving the crime. He reasons that the perpetrator of *The Handy Stop* robbery is a white male between the ages of 18-21, who lives with a relative in the Overlook Apartments. He reasons that the perpetrator is most likely a student or unemployed as the robbery took place at 11:23 p.m. He further reasons that the suspect is likely to strike again at *The 24-7*, a convenience store on the other side of the Overlook Apartments.



Profile 2:

Sergeant Sherlock, no slouch when it comes to solving crimes, had the opportunity to interview the store clerk Debra Doolittle the next day after the robbery. Upon interviewing Doolittle, Sherlock learned that the perpetrator had a dark complexion and a tattoo bearing the words, "4-Life" on his left arm. Doolittle also stated that the perpetrator wore heavy work boots that were covered in mud which she later had to clean up. She told Sherlock that embedded in the mud that she cleaned up were tiny pieces of seashells. She also related that the suspect fled in a white SUV. Since *The Handy Stop* is nowhere near the ocean, Sherlock reasons that the perpetrator could be employed by *Ocean Designs* some 15 minutes away which uses seashells in making its products. After researching *Ocean Designs*, he learns that the company has a work shift that ends at 11:00 p.m. and restricts employment to those over the age of 21 for liability reasons.



Sergeant Sherlock submits a criminal profile of the perpetrator to aid in solving the crime. Based on his interviews with Debra Doolittle and *Ocean Designs*, Sherlock reasons that the perpetrator drives a white SUV and is a non-white male over the age of 21 with a tattoo bearing the words, "4-Life." He further reasons that it is likely that the perpetrator is employed by *Ocean Designs* and works the shift ending at 11:00 p.m.