

OBJECTIVES:

- ❖ Define Deductive Reasoning
- ❖ Determine whether or not deductive reasoning is being employed
- ❖ Complete a proof using deductive reasoning
- ❖ Draw a conclusion using deductive reasoning

1. **DEDUCTIVE REASONING:** The process of reaching a necessary conclusion from given facts or hypotheses.

Deductive reasoning is less central in school mathematics than inductive reasoning, however, it is a nice complement. Most importantly, understanding the process of deductive reasoning and being able to determine if the argument is valid is essential to your knowledge base as you correct your students' papers.

2. USING DEDUCTIVE REASONING:

At school, Kim, Terry, Robyn, and Dale all enjoy different subjects. Terry likes Phys. Ed. and always carries gym clothes. Neither Kim nor Dale particularly like Science class. Neither Terry nor Kim like math although Kim gets good marks in Math. Can you match these people with their favorite subjects - Math, Science, Phys. Ed., and English?

3. Is the following conclusion valid?

Hypotheses: All elephants have legs. All chairs have legs.

Conclusion: All elephants are chairs.

4. Use deductive reasoning to fill in a conclusion from the given statements. Draw a Venn diagram for each problem.

- A. Hypotheses: Some people throw litter on the street.
 People who throw litter do not care about their surroundings.

Conclusion: _____

- B. Hypotheses: No students like pop quizzes.
 Miguel likes pop quizzes.

Conclusion: _____