

# Introduction to Logical Reasoning

---

## Problem Set #7

Although I strongly suggest that you write out answers to all these problems, you do *not* have to turn in any written responses. You do, however, need to be prepared to do these types of problems, for questions on the weekly quizzes and exams will primarily be drawn from the problem sets. The solutions to these problems will be provided, so you can check your own work and seek help from me as necessary.

We will devote considerable time to these types of problems during the next in-class workshop. In order to make that workshop productive, please make a solid start on them. That way you can use the workshop to address the difficulties you are facing.

If you do the extra credit logic puzzle, you must turn in a computer-type-written solution at the beginning of class on Monday, October 24<sup>th</sup>.

### Part A Instructions

Each of the following problems presents an argument. For each, use the truth table method from class to determine whether it is a valid or invalid argument. Be sure to briefly explain how the truth table supports your answer concerning the validity of the argument.

### Part A Problems

Do arguments 1–20 in Exercise 6.8 on pages 242–243 from *The Power of Critical Thinking* by Lewis Vaughn.

### Part B Instructions

Each of the following problems presents an argument in English. For each, (1) translate it into the language of logic, putting it into its argumentative form, and (2) use the truth table method from class to determine whether the argument is valid or invalid. Be sure to briefly explain how the truth table supports your answer concerning the validity of the argument.

### Part B Problems

Do arguments 1–11 in Exercise 6.9 on page 244 from *The Power of Critical Thinking* by Lewis Vaughn.

**Note:** There may a lot of exercises here. Do not feel obligated to do all of them. I often assign many exercises so that you have plenty of opportunities to practice the skills these exercises are trying to impart. I suggest doing just enough of them so that you are confident that you could use these skills on a quiz or an exam.

### Extra Credit Logic Puzzle

A wily young logician once met a famous movie actress, and he wished to kiss the young woman on the cheek. He said to her, "I would like to ask you a favor. I will make a statement. All I ask is that if the statement is true, then you give me your autograph. Will you do that for me?"

"I don't see why not," replied the young woman.

"But," continued the logician, "you must promise that if my statement is false, then you don't give me your autograph. Agreed?"

"All right," said the young woman, "this sounds easy."

The young man then made a statement such that, after a little thought, the actress, who was no slouch in logic either, realized (to her secret amusement) that the only way she could keep her word was to *not* give the man her autograph, but to allow him to kiss her on the cheek.

**Question:** What statement could the logician have said for this to happen?

To receive full credit you must justify your answer with a logical argument showing why you are 100% right. That is to say, this question has a definitive answer that can be justified without *any* guessing on your part.