

Introduction to Logical Reasoning

Problem Set #5

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 problems during the next in-class workshop. In order to make that workshop productive, please make a solid start on them. That way we can use the workshop to look at the problems that presented the most difficulties.

If you do the Extra Credit Logic Puzzle, you must turn in your *type-written* solution at the *beginning* (i.e., within the first ten minutes) of class on Sunday, February 13th.

Instructions

Each of the following problems presents an argument. For each, (i) circle and denote with a C the argument's conclusion, and (ii) underline and number each premise. Then explain whether the argument is deductively valid or deductively invalid. If it is invalid be sure to explain whether it is inductively strong or inductively weak.

Problems

Part A: Do arguments 1–18 in Exercise 3.1 on pages 79–81 from *The Power of Critical Thinking* by Lewis Vaughn.

Part B: Do arguments 1–23 in Exercise 3.2 on pages 81–82 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 (Hard)

The crew on the Qatar Airways flight to Washington, D.C. consists Mr. Rayhan, Mr. Mohammed, Mrs. Hafsa, Miss Ayah, Mr. Omar, and Miss Reema. The positions they occupy are pilot, co-pilot, navigator, head flight attendant, business class attendant, and economy attendant, though not necessarily in that order. The following facts are known:

1. The co-pilot is the pilot's grandson.
2. The navigator is the head flight attendant's son-in-law.
3. Mr. Mohammed is a bachelor.
4. Miss Ayah and Miss Reema are both unmarried.
5. Mr. Omar is twenty-two years old.
6. Miss Ayah is the business class attendant's step-sister.
7. Mr. Rayhan is the pilot's neighbor.

Question: Who holds each position?

To receive any 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.