

# CRITICAL THINKING

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## Problem Set #1: Statement Classification

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.

I have included an advanced logic puzzle for your own entertainment.

### Instructions

Each of the following problems presents a single statement. For each, indicate whether it is a simple or a compound statement. If it is simple, indicate whether it is negative or positive. If it is compound, indicate whether it is conjunctive, disjunctive, hypothetical, or some combination of these. Do not forget to indicate the type of simple statements that make up any compound statements.

### Problems

1. All the seniors know logic.
2. Some professors hate logic.
3. Most sophomores do not hate logic.
4. Either the seniors or the sophomores know logic.
5. The seniors know logic and the professor has an easy job.
6. Either the juniors will not enjoy logic or they will have fun.
7. The juniors certainly do enjoy logic.
8. The seniors know logic and the sophomores are jealous.
9. If the juniors do not love logic, then the professor is sad.
10. Either the professor is sad, or if his students are engaged in the class then the professor is happy.
11. If the seniors learn logic and the professor has an easy life, then the world is a better place.
12. If sophomores know logic and they get better jobs, then either their lives are easy or they will make lots of money.
13. If the seniors like logic then the professor is not sad, and if the professor is not sad then his wife is happy.
14. If the seniors either have easy lives or make lots of money, then the sophomores are jealous.
15. If the sophomores not knowing logic would cause the professor to be sad, then the world is a sad place for the professor.

**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.

### Logic Puzzle

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. Rayhan is a bachelor without children.
4. Miss Ayah and Miss Reema are both unmarried without children.
5. Mr. Mohammed is twenty-two years old.
6. Miss Ayah is the business class attendant's step-sister.
7. Mr. Omar is the pilot's neighbor.

**Question:** Who holds each position?

This question has a definitive right answer that can be fully justified without any guessing.