

Here are some review questions for the upcoming Yoramybumebumebume!

1) Given the statement, "All women are smarter than any man"

- a) Write this statement in Conditional Form
- b) Give the Inverse of this conditional statement
- c) Give the Converse of this conditional statement
- d) Give the Contrapositive of this conditional statement

2) Is the converse of a statement always logically equivalent to its Inverse? Can you prove it? If not, cite counterexamples. Hint: Try for a few examples we did in class or of your own devising. Think about good conjecturing practices.

3) In general, how is a definition different from a conditional statement?

b) Can all mathematical statements be written in conditional form? Try to find a counterexample.

4) All fans of James Brown are funky dancers.

Thom Yorke is a funky dancer.

Conclusion: ?

5) Is the following conclusion logically sound?

- a) If you are a kitten then you eat marshmallow bunnies
- b) If you are not a dog you do not eat marshmallow bunnies

Conclusion: All kittens are dogs

6) Is the following conclusion logically sound?

- a) If it is snowing then little drops of water are falling from the sky.
- b) It is not snowing.

Conclusion: Little drops of water are not falling from the sky.

7a) What is the inverse of the contrapositive of a given statement?

b) What is the inverse of the contrapositive of the converse for a given statement?

c) What is the contrapositive of the contrapositive for a given conditional statement?

8) Given that if you are fghyel then I am a yrekel, which of these situations is logically possible?

- a) I am a yrekel and you are a fghyel
- b) You are not a fghyel and I am not a yrekel
- c) You are not a fghyel and I am a yrekel
- d) I am not a yrekel and you are not a fghyel.

9) Draw an Euler diagram that represents “If a 4-legged animal is brown, then it has fuzzy hair”.

10) What can you conclude from the following statement?

If you own a gunkus, then you win at Banana-grams

Elliot always wins at Banana-grams

If you don't own a Gunkus, Grits taste good.

11) On the anniversary of our illustrious liberation from the tyranny of the dark warlord of necromancy, Dr. Illogical, we joyously celebrate Logic Day. However, since the memory of those dark days still rings fresh through our brows, we are careful to celebrate all creeds and belief systems on this joyous day. Thus, every student has the choice of being a Truthteller or Liar on the day of logic. The Truthtellers tell only the truth; the Liar speak only lies. I went up to Kurt, Lewis, and Alice, who were all members of our tribe. I asked Kurt whether he was a Truthteller or Liar. He mumbled his answer, so I asked Lewis, “What did he say?” Lewis said, “Kurt says he is a Truthteller.” Then Alice said, “Alan is lying.”

For each of the three people, determine whether they are a Truthteller, a Liar, or you can't determine their status.