Lab Assignment #19

This lab is due at 12:30 PM on Monday, 11/18 and is worth 10 points. This part may be done individually, or in a group of 2, 3, or 4 people.

1) Consider the claim: Every Siberian Husky likes to chase squirrels. What would one have to show to demonstrate that the claim is false?

2) Consider the claim: There is a swear word in my 10-page paper. What would one have to show to demonstrate that the claim is false?

3) Consider this if-then statement:

If a polygon has 4 sides, then the polygon is a rectangle.

a) Is this true?

b) Write the converse. (You may find it easiest to read if you keep "a" in the first part of the sentence and "the" in the second part.)

c) Is the converse true?

d) Write the inverse.

e) Is the inverse true?

f) Write the contrapositive.

g) Is the contrapositive true?

h) Are you results consistent with what we learned in class about a statement and its inverse, converse, and contrapositive? Explain.

- 4) Consider this if-then statement:
 - If x = 3, then 5x + 12 = 27.
- a) Is this true?
- b) Write the converse.
- c) Is the converse true?
- d) Write the inverse.
- e) Is the inverse true?
- f) Write the contrapositive.
- g) Is the contrapositive true?

h) Are you results consistent with what we learned in class about a statement and its inverse, converse, and contrapositive? Explain.

5) Consider this biconditional:

A person is a Democrat if and only if they are not a Republican.

- a) Write this as two if-then statements connected by an "and".
- b) Discuss the truth of the two if-then statements.
- c) Is the biconditional true or false?

6) Consider this biconditional:

A number if divisible by 5 if and only if it ends in 5 or 0.

- a) Write this as two if-then statements connected by an "and".
- b) Discuss the truth of the two if-then statements.

c) Is the biconditional true or false?

7) Consider this argument. Determine if it is valid or not. If it is, give a name of the type of reasoning. Remember, it doesn't matter if the premises are true; we are concerned with whether the premises are enough to prove the conclusion.

All squares are rectangles All rectangles have 4 sides Therefore, all squares have 4 sides

8) Consider this argument. Determine if it is valid or not. If it is, give a name of the type of reasoning. Remember, it doesn't matter if the premises are true; we are concerned with whether the premises are enough to prove the conclusion.

Claüdia is the most beautiful dog in the world, or my name is not Biffalo Buff. My name is Biffalo Buff.

Therefore, Claüdia is the most beautiful dog in the world.

9) Consider this argument. Determine if it is valid or not. If it is, give a name of the type of reasoning. Remember, it doesn't matter if the premises are true; we are concerned with whether the premises are enough to prove the conclusion.

Every good badger deserves fudge. Trashmouth is a good badger. Therefore, Trashmouth deserves fudge. 10) Consider this argument. Determine if it is valid or not. If it is, give a name of the type of reasoning. Remember, it doesn't matter if the premises are true; we are concerned with whether the premises are enough to prove the conclusion.

Every time a bell rings, an angel gets its wings. No angels got any wings today. Therefore, no bells rang today.

11) Consider this argument. Determine if it is valid or not. If it is, give a name of the type of reasoning. Remember, it doesn't matter if the premises are true; we are concerned with whether the premises are enough to prove the conclusion.

If The Grinch comes to your house, there will be crumbs too small for a mouse. The Grinch didn't come to your house.

Therefore, there are no crumbs too small for a mouse.

12) Consider this argument. Determine if it is valid or not. If it is, give a name of the type of reasoning. Remember, it doesn't matter if the premises are true; we are concerned with whether the premises are enough to prove the conclusion.

If I order more than \$35 on Amazon, I get free shipping. I get free shipping. Therefore, I ordered more than \$35 on Amazon. 13) Consider this argument. Determine if it is valid or not. If it is, give a name of the type of reasoning. Remember, it doesn't matter if the premises are true; we are concerned with whether the premises are enough to prove the conclusion.

I'm didn't vote for Sophie or Emma for homecoming queen. Therefore, I didn't vote for Sophie.

14) Consider this argument. Determine if it is valid or not. If it is, give a name of the type of reasoning. Remember, it doesn't matter if the premises are true; we are concerned with whether the premises are enough to prove the conclusion.

I didn't mow the lawn and paint the house today.

Therefore, I didn't paint the house today.