

Math 100  
Fall, 2008

Name \_\_\_\_\_

Homework # 6  
Due Monday, October 6  
No late papers accepted! No excuses!

1. Given the direct statement: If Jason is a singer, then he is well known.
  - a) Write the converse.
  
  
  
  
  
  
  
  
  
  
  - b) Write the inverse.
  
  
  
  
  
  
  
  
  
  
  - c) Write the contrapositive.
  
  
  
  
  
  
  
  
  
  
  - d) Write an equivalent statement in its disjunctive form.
  
  
  
  
  
  
  
  
  
  
  - e) Write the negation of the statement in its conjunctive form.
  
2. Use one of DeMorgan's Laws to write an equivalent statement to:
  - a) The car is not reliable and the car is noisy.
  
  
  
  
  
  
  
  
  
  
  - b) It is false that the ink is red and the pen has a ball point.

3. Construct a truth table for the statement:

$$(\sim p \leftrightarrow \sim q) \rightarrow (\sim q \wedge r)$$

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4. Determine which, if any, of the three statements are equivalent.

- a) The house is not made of wood or the shed is not made of wood.
- b) If the house is made of wood, then the shed is not made of wood.
- c) It is false that the shed is made of wood and the house is not made of wood.

5. Consider this statement:

If Jed scores a goal, then his team will win.

Which of the following statements must also be true?

- a) Jed's team can win only if he scores a goal.
- b) If Jed does not score, his team will lose.
- c) If Jed's team lost, he did not score a goal.
- d) Only Jed can score on his team.
- e) Jed is the best player on the team.