

Name:

I. Let X , Y , and Z be statements.

Are the following statements equivalent to “If X is true, then Y is true or Z is true”?

Please circle your answers.

- 1] If X is true and Y is false, then Z is true. YES | NO
- 2] If X is true and Z is false, then Y is true. YES | NO
- 3] If Y is false and Z is false, then X is false. YES | NO
- 4] If Y is false or Z is false, then X is false. YES | NO
- 5] If Y is true or Z is true, then X is true. YES | NO
- 6] If X is true, then Y is true and Z is true. YES | NO
- 7] If X is false, then Y is false and Z is false. YES | NO
- 8] If X is false, then Y is false or Z is false. YES | NO
- 9] X is false or Y is true or Z is true. YES | NO
- 10] X is true and Y is true and Z is true. YES | NO
- 11] X is true and Y is true, or X is true and Z is true. YES | NO

II. What is the negation of the following statement?

“For all real numbers x and y , if $x < y$ then there exists a rational number q such that $x < q < y$.”