

Quiz #2 10/16/09

Name: _____

Directions: Make sure to read each problem carefully. To receive full credit, you must show all of your work.

Problem 1. (5 points) Are the following logical statements equivalent?

$$S : [p \rightarrow (q \vee r)] \quad T : [(-p \wedge q) \rightarrow r]$$

Make sure to give sufficient evidence either way.

Problem 2. (5 points) Determine the number of integer solutions of

$$x_1 + x_2 + x_3 + x_4 = 32$$

if $x_1, x_2 \geq 5$ and $x_3, x_4 \geq 7$.

The following statements will be used in problems 3 and 4.

p: I finish writing my computer program before lunch.

q: I shall play tennis this afternoon.

r: The sun is shining.

s: The humidity is low.

Problem 3. (3 points) Write the following statement in symbolic form.

“If I don’t finish writing my computer program before lunch and the sun is shining, then I shall not play tennis this afternoon.”

Problem 4. (3 points) Write the following symbolic statement as an English sentence.

$$q \leftrightarrow (r \wedge \neg s)$$