Logic 275 Quiz 3 Name _____

1. Determine whether the following statements are substitution instances of the forms given. (1 point) **Circle (or embolden or write) Y (for yes) or N (for no)**

a. Is the statement A ⊃ ~ (B • C) a substitution instance of p ⊃ ~q? Y / N
b. Is the statement B ⊃ B a substitution instance of p ⊃ q? Y / N

c. Is the statement (A ⊃ B) ⊃ C a substitution instance of p ⊃ (q ⊃ r)? Y / N
d. Is the statement (A ⊃ B) ⊃ C a substitution instance of (p ⊃ q) ⊃ r? Y / N

2. Is the following inference valid? If so, by what rule? (1 point)

~ (A v B) ⊃ (~A v ~B), ~(~A v ~B) / ∴ ~ ~ (A v B).

Valid? (Y / N)

By which rule? _____

3. Construct a proof for the following. In each step, you may you any of the eight basic rules of inference. (2 points)

A ⊃ (B v C), A • ~B / ∴ C

Construct a proof for the following, using any of the rules of inference and replacement rules you need. (2 points)

~A / ∴ ~ (A • ~B).