

Name: _____

RoI Worksheet

Prove the following problems using the rules of implication/inference.

- A.
1. $p \vee q$
 2. $p \supset r$
 3. $\sim r$ / q
 4. $\sim p$ 2,3, MT
 5. q 1,4, DS
- B.
1. r
 2. $r \supset p$
 3. q / $p \cdot q$
 4. p 2,1, MP
 5. $p \cdot q$ 3,4, Conj
- C.
1. $(a \supset b)$
 2. $a \vee c$
 3. $(c \supset d)$ / $b \vee d$
 4. $(a \supset b) \cdot (c \supset d)$ 1,3, Conj
 5. $b \vee d$ 4,2, CD
- D.
1. $\sim x \supset y$
 2. $z \supset \sim x$
 3. z / $y \vee x$
 4. $z \supset y$ 2,1, HS
 5. y 4,3, MP
 6. $y \vee x$ 5, add
- E.
1. $a \cdot \sim b$
 2. $b \vee c$ / $c \cdot a$
 3. $\sim b$ 1, simp
 4. c 2,3, DS
 5. a 1, simp
 6. $c \cdot a$ 4,5 conj
- F.
1. $p \supset q$
 2. $\sim p \supset r$
 3. $\sim q$ / $r \cdot \sim q$
 4. $\sim p$ 1,3, MT
 5. r 2,4 MP
 6. $r \cdot \sim q$ 5, 3 conj
- G.
1. $(a \supset b) \cdot (c \supset d)$
 2. a / $b \vee d$
 3. $a \vee c$ 2, add
 4. $b \vee d$ 1,3 CD

H.

1. $p \supset q$

2. $q \supset (\sim r \vee s)$

3. $p \quad / \sim r \vee s$

4. $p \supset (\sim r \vee s)$ 1,2 HS

5. $\sim r \vee s$ 4,3, MP

OR

4. q 1,3 MP

5. $\sim r \vee s$ 2,4 MP