

Activity 2-1 (16 Aug 2018)

Inference rules

1. Use a truth table to prove Hypothetical syllogism. That is show that the conclusion $P \Rightarrow R$ logically follows from hypotheses $P \Rightarrow Q$ and $Q \Rightarrow R$.

2. Use inference rules and standard logical equivalences (e.g., $A \Rightarrow B \equiv \neg A \vee B$) to show that hypotheses

$$P \Rightarrow R$$

$$Q \Rightarrow R$$

leads to the conclusion $(P \vee Q) \Rightarrow R$.

| <u>Steps</u> | <u>Reason</u> |
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Proofs

3. Prove the following statement: If integer a divides integer b , and b divides integer c , then a divides c . (If you run out of space, you can continue on the back of this page.)