

Math 1303 - Math in the Liberal Arts

Homework #2 - 2005.08.31

Due Date - 2005.09.09

1. Show that $p \rightarrow (q \vee r) \Leftrightarrow (p \wedge \sim q) \rightarrow r$.
2. Rewrite the following two compound statements in an equivalent fashion using the above identity.
 - a) If $a \cdot b = 0$, then either $a = 0$ or $b = 0$.
 - b) If p is a factor of the product $a \cdot b$ and p is not a factor of a , then p is a factor of b .
3. Determine if the following arguments are valid or invalid.
 - a) Anyone who lives in the city Honolulu, HI also lives on the island of Oahu.
Kanoë lives on the island of Oahu.
Therefore, Kanoë lives in the city Honolulu, HI.
 - b) Anyone who lives in the city Honolulu, HI also lives on the island of Oahu.
Kanoë does not live on the island of Oahu.
Therefore, Kanoë does not live in the city Honolulu, HI.
 - c) Anyone who lives in the city Honolulu, HI also lives on the island of Oahu.
Kanoë does not live in the city Honolulu, HI.
Therefore, Kanoë does not live on the island of Oahu.
 - d) Anyone who lives in the city Honolulu, HI also lives on the island of Oahu.
Kanoë lives in the city of Honolulu, HI.
Therefore, Kanoë lives on the island of Oahu.
4. Determine which of the following statements are equivalent:
 - a) If a number ends in zero, then it is divisible by five.
 - b) If a number is divisible by five, then it ends in zero.
 - c) If a number does not end in zero, then it is not divisible by five.
 - d) If a number is not divisible by five then it does not end in zero.