MAT 129
Quiz #1
February 11, 2005

Name:

You may not use your notes. Please show all of your work. An answer without justification will receive little credit.

(1) Determine which of the following statements are true and which are false.

    a.) $3|100$. **False.**

    b.) $0|4$. **False.**

    c.) $4|0$. **True.**

    d.) $3| - 21$. **True.**

    e.) -2 is prime. **False.**

    f.) 5 is prime. **True.**

    g.) 6 is composite. **True.**

(2) Consider the two statements:

    a.) A iff B.
    b.) $\neg A$ iff $\neg B$.

Under what circumstances are these statements true? When are they false? Are these the stetements identical? Why or why not?

    The first is true whenever A and B have the same value (true or false) and false otherwise. The second statement is true whenever $\neg A$ and $\neg B$ have the same value and false otherwise. Since $A = B \Leftrightarrow \neg A = \neg B$, the two statements are logically equivalent.