(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 statements 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.