Math 301
Quiz 3

Show all work in a neat and organized fashion. Clearly indicate your answers.
10 points possible.

1. (5 pts.) Write the following sentences using the quantifier notation (i.e., use the symbols $\exists$ and/or $\forall$). (These statements may or may not be true, so don't try to prove them!)

(a) There is an integer that is neither prime nor composite.

(b) All integers are divisible by 7.

(c) The square of any integer is nonnegative.

(d) There is an integer that when multiplied by any integer always gives the result 0.

(e) No matter what integer you choose, there is always another integer that is larger.

2. (5 pts.) Let $E = \{x \in \mathbb{Z} : x \mid 8\}$ and $W = \{x \in \mathbb{Z} : x \mid 56\}$. Prove $E \subseteq W$.