Name: ___________________________ NetID: __________

[2 + 2 + 2 + 4 pts.] Answer the following questions.

(a) If $V$ is a vector space and $W$ is a subset of $V$ that is a vector space, then $W$ is a subspace of $V$.

   Solution: True.

(b) The empty set is a subspace of every vector space.

   Solution: False.

(c) The intersection of any two subsets of $V$ is a subspace of $V$.

   Solution: True.

(d) Let $W$ be the $xy$–plane in $R^3$; that is, $W = \{(a_1, a_2, 0) : a_1, a_2 \in R\}$. Then $W = R^2$.

   Solution: False.

(e) In any vector space, $ax = ay$ implies that $x = y$.

   Solution: False.

(f) The span of $\emptyset$ is $\emptyset$.

   Solution: False.

(g) Every system of linear equations has a solution.

   Solution: False.