**Math 116: Written Homework Set 7**

**This assignment is due on Monday, February 18th in class. Show all work where possible! Answers magically appearing will receive no credit.**

1. Which of the following sets are well-defined?

a. {1, 2, 3, 4, 5}  
 b. The set of great cities in which to live.

c. {*x* | *x* is a U.S. state}

d. {*x* | *x* is a fun game}

2. Find the cardinality of the following sets.

a. {A, B, C, D, E, F}

b. {*x* | *x* is a U.S. state}  
  
3. State whether each of the pairs of sets are equal, equivalent, or neither.   
 a. {1, 2, 3} and {3, 2, 1}

b. {6, 8, 10, 12} and {1, 2, 3, 4}

4. Determine whether the following statements are true or false.

a. e.   
 b. f.   
 c. g.   
 d. h. {1, 2} and {1, 2, 3} are both equal and equivalent

5. If the universal set is , find the complement of the following sets.

a.   
 b. The set of odd counting numbers less than 8.

6. Find the number and list all of the subsets of the following sets.

a. {1, 2, 3}

b. {h, e, l, p}

**Selected Answers**

1. a. Is well-defined.  
 b. Not well-defined. Not clear on what defines a great city.

2. a. 6

3. a. Both equivalent (both have 3 elements) and equal (have the exact same elements).

4. a. True  
 d. False. Even though a set is a subset of itself, it is not a proper subset.  
 g. True  
 h. False. The sets are neither equal or equivalent.  
  
5. a.   
  
6. Since the set has elements, the set has elements. The 8 subsets are