Math 112 - Quiz 2

January 31, 2018

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (2 points) List all of the subsets of $\{3, 6, 9\}$.

2. (2 points) A certain set has 5 elements. How many subsets does it have? How many of those subsets are proper subsets?

3. (4 points) Let $X = \{1, 3, 5, 7, 9\}$ and $Y = \{1, 2, 3, 4, 5\}$, and think of X and Y as subsets of the universal set $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$. Determine each of the following.

   (a) $n(Y)$

   (b) X'

   (c) $X \cup Y$

   (d) $Y' \cup \emptyset$

4. (2 points) Refer to the set Y defined in the problem above. Give an example of a single set A that satisfies all of the following:

$$A \subseteq \mathbb{N}, \qquad A \cong Y, \qquad 13 \in A, \qquad 7 \notin A$$