Math 112 - Quiz 1

Name _____

January 16, 2019

Score _____

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

1. (1 point) In one of the exercises in our textbook, the author claims that the set of all mothers is NOT well defined. Give at least one reason why it is not well defined.

2. (3 points) Let $A = \{10, 20, 30, 40, 50, \ldots\}$.

   (a) Is it true that $240 \in A$? Explain your answer.

   (b) Is it true that $7172 \in A$? Explain your answer.

   (c) Give a verbal description of the set A.

3. (2 points) Let $B = \{x | x \in \mathbb{N} \text{ and } -7 \leq x < 5\}$.

   (a) Write B is roster notation.

   (b) Give a verbal description of B.

4. (1 point) Use a table or diagram to show a one-to-one correspondence between the sets $\{p, q, r\}$ and $\{1, 11, 111\}$.

5. (1 point) Determine the cardinality of the set $\{\emptyset, \{\emptyset\}\}$.

6. (1 point) Suppose A and B are sets with $n(A) = 3$ and $n(B) = 4$. Is it possible that $A \cong B$? Explain your answer.

7. (1 point) Let $Q = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16\}$. Write Q in set-builder notation.