Math 112 - Quiz 2

August 30, 2017

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary. YOU MUST WORK INDIVIDUALLY.

1. (5 points) Suppose U is the universal set $U = \{1, 2, 3, 4, 5, 6, 7\}$, and let $A = \{2, 4, 6\}$.

   (a) True or False? $U \subseteq A$.

   FALSE, BUT $A \subseteq U$

   (b) True or False? $8 \in A'$

   FALSE $\quad A' = \{1, 3, 5, 7\}$

   (c) True or False? $\emptyset \subseteq A$

   TRUE, $\emptyset$ IS A SUBSET OF EVERY SET.

   (d) Give an example of a set that is equivalent to A, but not equal to A.

   $\{1, 3, 5\}$

   (e) Let $Z = \{1, 2, 3, 4\}$. Determine Z'.

   $Z' = \{5, 6, 7\}$

2. (1 point) Write the set in roster notation: $\{x \mid x \in \mathbb{N} \text{ and } x < 7\}$

   $\{1, 2, 3, 4, 5, 6\}$

3. (2 points) Let U be the set of all PSC students, and let M be the set of all PSC math students. Describe (in words) an element of the set M'.

   A PSC STUDENT NOT TAKING MATH

4. (2 points) Give an example of a single set B that satisfies all three of the following:

   $B \subseteq \mathbb{N}, \quad B \cong \{x, y, z\}, \quad 7 \in B$

   $B = \{6, 7, 8\}$

   B MUST BE A 3-ELEMENT SET OF NATURAL #'S CONTAINING 7.