Math 112 - Quiz 1

January 24, 2018

Name _key_

Score _____

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

1. (2 points) Let A be the set of all real numbers greater than 9. Is A well defined? Briefly explain.

   YES, THE DESCRIPTION OF THE SET IS OBJECTIVE, AND WE CAN DETERMINE EXACTLY WHAT IS AND IS NOT IN THE SET.

2. (1 point) List one number that is an element of the set $\mathbb{N}$ and one number that is not an element of $\mathbb{N}$. Say which is which.

   $5 \in \mathbb{N}$, $\quad -5 \notin \mathbb{N}$

3. (2 points) Let L be the set of letters in the word *tattletale*. Write L in roster notation and then determine $n(L)$.

   $L = \{t, a, \ell, e\}$ $\qquad n(L) = 4$

4. (2 points) Circle each set that is equal to $\{a, b, c\}$.

   $\boxed{\{a,b,c\}}$ $\boxed{\{b,c,a\}}$ $\boxed{\{a,a,b,b,c,c\}}$ $\quad \{a,b,c,d\}$ $\qquad \{a,b\}$

5. (2 points) Write this sentence is words: $13 \in \{1, 3, 5, 7, 9, \dots\}$. Is the sentence true or false?

   "13 IS AN ELEMENT OF THE SET OF ODD NATURAL NUMBERS" $\qquad$ THE SENTENCE IS TRUE.

6. (1 point) Let $M = \{x \mid 5x + 3 = 23\}$. Which notation has been used to describe the set M: verbal, roster, or ⟨set-builder⟩ Rewrite M in roster notation.

   $\underline{M = \{4\}}$

   $5x + 3 = 23$
   $\quad 5x = 20$
   $\qquad x = 4$