

Math 112 - Quiz 1

January 25, 2017

Name key

Score _____

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

1. (2 points) List two numbers that are elements of the set \mathbb{N} and two numbers that are not elements of \mathbb{N} . Say which are which.

$$1, 2 \in \mathbb{N} \quad -5, 0 \notin \mathbb{N}$$

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

$$X = \{m, i, s, p\} \quad n(X) = 4$$

3. (4 points) Determine if each sentence is true or false. If false, explain why.

(a) $13 \in \{1, 3, 5, 7, \dots\}$

True

(b) $\{1, 2, 3, 4, 5, 6\} \in 4$

FALSE, $4 \in \{1, 2, 3, 4, 5, 6\}$ BUT OTHER WAY AROUND MAKES NO SENSE

(c) $b \in \{a, b, c, d\}$

True

(d) $-2 \in \mathbb{N}$

FALSE, -2 IS NOT A NATURAL NUMBER

4. (2 points) Let $B = \{x \mid 2x - 1 = 7\}$. What notation has been used to describe the set B : verbal, roster, or set-builder? Rewrite B using one of the other notations.

B IS DESCRIBED IN SET-BUILDER NOTATION

$$2x - 1 = 7$$

$$\Leftrightarrow x = 4 \Rightarrow B = \{4\}$$