Math 099 - Quiz 2

September 10, 2018

Name __key__

Score _____

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

1. (2 points) Let $Y = \{x | x \in \mathbb{N} \text{ and } x < 10\}$. Rewrite Y in roster notation.

$$Y = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$$

2. (2 points) Let $M = \{x | x = 5k + 2 \text{ and } k \in \mathbb{N}\}$.

THE ELEMENTS OF M ARE NATURAL NUMBERS THAT ARE 2 MORE THAN A MULTIPLE OF 5

(a) Give an example of a natural number that is an element of M.

$$k = 1 \implies X = 7$$

$$\boxed{7 \in M}$$

(b) Give an example of a natural number that is not an element of M.

$$\boxed{5 \notin M}$$

3. (3 points) Use set-builder notation to describe the following set.

$$\{8, 9, 10, 11, \ldots, 28, 29\}$$

$$\{x \mid x \in \mathbb{N} \text{ AND } 8 \leq x \leq 29\}$$

4. (3 points) Let $R = \{x | x \in \mathbb{N} \text{ and } x < 1\}$. Write the description for R in words.

R is the set...

OF ALL X's SUCH THAT X IS A NATURAL NUMBER AND X IS LESS THAN 1.