

Math 112 - Quiz 1

August 25, 2016

Name key

Score _____

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

1. (2 points) Let X be the set of letters in the word *Alaska*. Write X in roster notation.

$$X = \{a, l, s, k\}$$

2. (2 points) Determine if each is true or false. If false, explain why.

(a) $8 \in \{2, 4, 6, \dots\}$

True, 8 IS AN ELEMENT OF THAT SET

(b) $\emptyset = \{\emptyset\}$

False, $\{\emptyset\}$ IS THE SET CONTAINING THE EMPTY SET. IT HAS 1 ELEMENT. IT IS NOT EMPTY.

3. (2 points) Let Y be the set of natural numbers that are strictly between -5 and 4 . List the elements of Y .

$$Y = \{1, 2, 3\}$$

$\rightarrow N = \{1, 2, 3, 4, \dots\}$

4. (2 points) Explain why the following sets are NOT equivalent: $\{123\}$ and $\{1, 2, 3\}$.

$\{123\}$ HAS 1 ELEMENT.

$\{1, 2, 3\}$ HAS 3 ELEMENTS.

THEY ARE NOT IN 1-1 CORRESPONDENCE.

5. (2 points) Let $A = \{1, 3, 5, \dots, 23\}$. Determine $n(A)$.

$$A = \{1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23\}$$

$$n(A) = 12$$