Math 314 Summer 2010

6/3/2010
Quiz #3

Name: Key

Show all work clearly and in order. Please box your answers. 10 minutes.

1. How many elements are in the following sets:

(a) $|\{1,2,3\}| = \boxed{3}$

(b) $|\{\emptyset, \{\emptyset\}\}| = \boxed{2}$

(c) $|\emptyset| = \boxed{0}$

(d) $|\{\{\{5\}\}, \emptyset\}| = \boxed{2}$

2. For each integer n, let $W_n = \{n, n^3\}$. How many elements are in the following sets:

(a) $W_0 = \{0, 0^3\} = \{0, 0\} = \{0\}$ so $\boxed{|W_0| = 1}$

(b) $W_1 = \{1, 1^3\} = \{1, 1\} = \{1\}$ so $\boxed{|W_1| = 1}$

(c) $W_2 = \{2, 2^3\} = \{2, 8\}$ so $\boxed{|W_2| = 2}$

(d) $W_{-1} = \{-1, (-1)^3\} = \{-1, -1\} = \{-1\}$ so $\boxed{|W_{-1}| = 1}$

3. Let $A = \{1, 2, 5\}$

(a) Give an example of an element of A.

$\boxed{1 \in A.}$ (other answers: 2, 5)

(b) Give an example of a subset of A.

$\emptyset$ (other answers: $\{1\}, \{2\}, \{5\}, \{1,2\}, \{1,5\}, \{2,5\}, \{1,2,5\}$)