MATH 34001
MWF 11:00

Fundamental Concepts of Algebra

Spring 2015
Dr. Kracht

Name: KEY Quiz Score: /20

Quiz 1: Friday, January 23, 2015

1. (12 pts) Complete each of the following definitions.

   (a) A integer n is said to be ***odd*** if

   there exists an integer k for which $n = 2k+1$.

   (b) A set is said to be ***closed*** under a binary operation if

   the combination of any two elements in the set is itself an element of the set.

   (c) *(Complete the following using set notation.)*

   $\mathbb{Z} =$ $\{\ldots, -2, -1, 0, 1, 2, \ldots\}$

   (d) The number 0 is said to be the ***additive identity element*** of $\mathbb{Z}$ since

   $a + 0 = a = 0 + a$, for all $a \in \mathbb{Z}$.

2. (2 pts) TRUE or FALSE: The number 0 is even.

   Since $0 = 2 \cdot 0$

3. (6 pts) State the properties of addition or multiplication of $\mathbb{N}$ illustrated by each of the following.

   (a) $13 + (5 + 92) = 13 + (92 + 5)$

   Commutative Property of Addition

   (b) Compute $13 \cdot 5 \cdot 92$

   Associative Property of Multiplication

   (c) $(7 + 6) \cdot (5 + 92) = (7 + 6) \cdot 5 + (7 + 6) \cdot 92$

   (left) Distributive Law (of Multiplication over Addition)