

**Quiz #1**  
**Foundations for College Algebra - MW**  
**University of North Georgia**  
**Fall 2015**

Name: Key Date: August 26, 2015

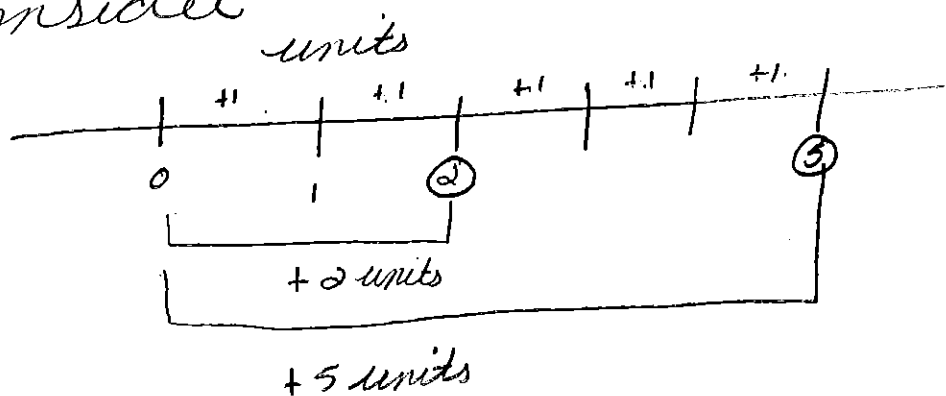
1. Is the following set *finite* or *infinite*:  $H = \{0, 1, 2, \dots, 150, 151\}$ ? Support your answer with a brief explanation.

Finite, because  $H$  stops at 151.  
There are no ellipses "..."  
at the end after 151 to  
indicate the set continues.

2. What principle guarantees that  $2 < 5$  is true? Explain the how the number line is used in support of said principle.

The Order Principle

Consider



from zero, each value represents  
an increase of one unit.  
So, 5 represents three more  
units than 2 from zero.

3. Expand the following number 253,134 using the set  $D = \{0,1,2, \dots, 9\}$  and state name of each **place value**.

$$2 \cdot 100,000 + 5 \cdot 10,000 + 3 \cdot 1,000 + 1 \cdot 100 + 3 \cdot 10 + 4 \cdot 1$$

Hundred Thousand
Ten Thousand
Thousand
Hundred
Ten
one

4. State the **Commutative and Associative Power Tools** Algebraically, state their respective **key ideas**, and give an example of each.

Commutative:  $a + b = b + a$   
 $a \cdot b = b \cdot a$

Key: Order changes, but result is the same.

$$6 + 4 = 4 + 6 = 10$$

Associative:  $a + (b + c) = (a + b) + c$

Key: Order stays the same but association changes; the result is the same.

$$\begin{aligned} 2 + (3 + 5) &= (2 + 3) + 5 \\ 2 + 8 &= 5 + 5 \\ 10 &= 10 \end{aligned}$$

5. Consider the following:  $x - 6 = 8$ . What **Algebraic Power Tool** would we use to move the "6" to the other side of the equation?

$$\begin{array}{r} x - 6 = 8 \\ + 0 + 6 \quad + 6 \\ \hline x + 0 = 14 \end{array}$$

Additive Inverse  
 $6 + (-6) = 0$