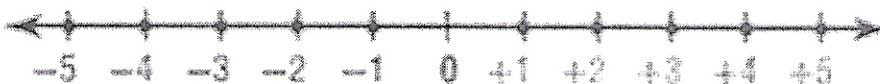


**3.1 Guided Notes (Integers and Absolute Value)**

**Integers:**

- Numbers like 5 and -8 are called integers.
- An integer is any number from the set  $\{\dots, -4, -3, -2, -1, 0, 1, 2, 3, 4, \dots\}$  where ... means continues without end.
- What are some real-life examples of integers?  
\$10    25°F    -5°F

- Negative integers are integers less than zero. They are written with a - sign.
- Positive integers are integers greater than zero. They are written with a + sign.
- Zero is neither positive nor negative.
- Integers can be graphed on a number line.
- To graph an integer on the number line, draw a dot on the line at its location.



**Practice: Graphing Integers**

1. Graph the set of integers  $\{4, -6, 0\}$  on a number line.



2.  $\{2, -5, 9, -8\}$



3.  $\{4, 0, -4\}$



**Practice: Write an integer for each situation.**

1. An average temperature of 5 degrees below normal

$-5$

2. An average rainfall of 5 inches above normal

$+5$

3. 6 degrees above normal

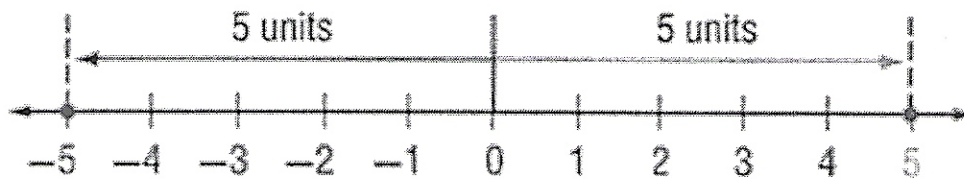
$+6$

4. 2 inches below normal

$-2$

**Absolute Value:**

- The Absolute value of a number is the distance between the number and zero on the number line.



$$|-5| = 5$$

$$|5| = 5$$

- Notice that -5 and 5 are each 5 units from zero, even though they are on opposite sides of zero.
- Numbers that are the same distance from zero on a number line have the same absolute value.
- We represent absolute value by using straight lines on either side of the number,  $|-5|$ .

**Practice: Evaluate each expression.**

1.  $|-4| = 4$

2.  $|-5| - |2| = 5 - 2 = 3$

3.  $|8| = 8$

4.  $2 + |-3| = 2 + 3 = 5$

5.  $|-6| - 5 = 6 - 5 = 1$

6. Nick climbs 30 feet up a rock wall and then climbs 22 feet down to a landing area. The number of feet Nick climbs can be represented using the expression  $|30| + |-22|$ . How many feet total did Nick climb?

$$|30| + |-22| = 30 + 22 = \boxed{52 \text{ feet}}$$