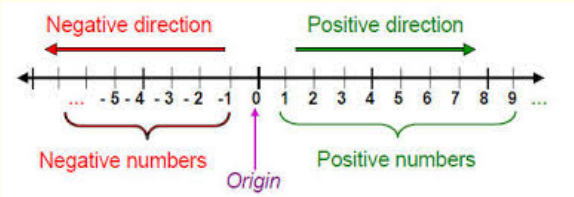
2.1 (Page 54) Integers & Absolute Value

Negative and positive numbers (also called INTEGERS) are often used to show opposite situations. Zero is considered to be the starting point, or the origin. These numbers are often shown on a number line.



The set of all integers can be written

{... -3, -2, -1, 0, 1, 2, 3 ...}

Can you think of an integer that is neither positive nor negative??

ZERO

Situations that involve growth or increase are usually represented by positive integers.

Situations that involve decline or decrease are usually represented by negative integers.

<u>EXAMPLES:</u> Write the integer that describes the situation.

1.) loss of 8 yards

-8

2.) 4 degree rise in temperature

$+4$ or 4

3.) 50 foot drop in altitude

-50

4.) debt of $500

-500

5.) 10 pound gain

$+10$ or 10

6.) stock value unchanged

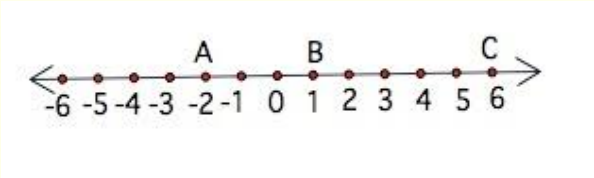
0

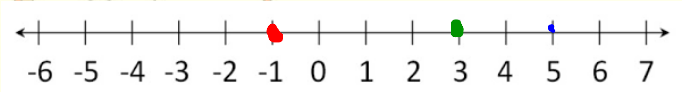
To graph a particular set of integers, locate the integer points on a number line.

The number that corresponds to a point on the number line is called the COORDINATE of the point. They are labeled as capital letters on the number line.

Name the coordinates of A, B, and C.

-2 1 6





Graph {-1, 3, 5} on a number line.

As an example, look at the number line below where 6 & -6 are. They are different numbers, but they are the same distance from zero. This means they have the same absolute value.

ABSOLUTE VALUE: The distance the number is from the zero point on the number line

What is the symbol for absolute value??

Examples: Simplify each absolute value.

1.) |-8|

8

2.) |-3| + |2|

3+2=5

3.) |15| - |-3|

15-3=12

4.) |-20| + |-19|

20+19=39

5.) |-5| - |2|

5-2=3

6.) |-31| + |-18|

31+18=49

7.) |-8| - |8|

8-8=0

2.2 (Page 57) Comparing & Ordering

On a number line, values increase as you move to the right. This makes it easy to determine which of two numbers is greater.

You can compare two integers using inequality signs, such as < (less than) or > (greater than).

<u>EXAMPLES:</u> Compare the two integers.

5 ___>___ -8

6 ___>___ 4

-7 ___<___ 6

-3 ___<___ 2

-10 ___<___ 9

-16 ___>___ -40

0 ___>___ -12

-3 ___<___ 3

|-1| ___=___ 1

1

EXAMPLES: Use the numbers in each sentence to write an inequality. Use < or >.

1.) -3 is less than 10

$-3 < 10$

$10 > -3$

2.) 8 is greater than 7

$8 > 7$

$7 < 8$

3.) 65 mph is faster than 55 mph

$65 > 55$ $55 < 65$

4.) Chris spent $40 and gained $70

$-40 < 70$ $70 > -40$

5.) Stacey made 10 foul shots. She missed 4 in the same game.

$10 > -4$ $-4 < 10$

EXAMPLES: Order the numbers in each set from least to greatest.

{7, 0, 4} $\{0, 4, 7\}$

{-4, -6, 0, -2} $\{-6, -4, -2, 0\}$

{3, -6, 6, -3} $\{-6, -3, 3, 6\}$

{-4, 3, 0, -2} $\{-4, -2, 0, 3\}$

{-7, 5, -9, 4} $\{-9, -7, 4, 5\}$

{-3, 1, -5, 2} $\{-5, -3, 1, 2\}$