Accelerated Math Notes
(Absolute Value and Integers)
Section 2-1

Important vocabulary:

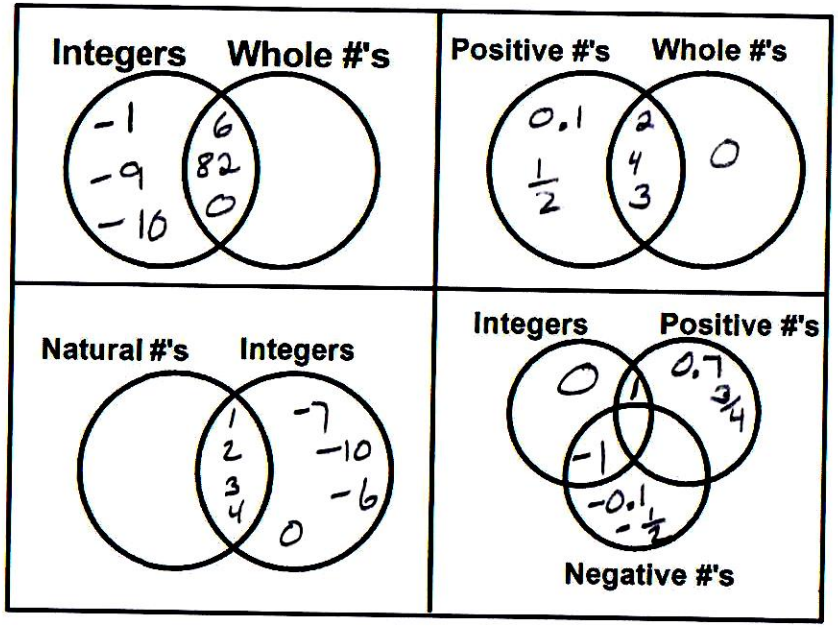
*negative numbers #'s less than 0

*postive numbers #'s greater than 0

*whole numbers 0, 1, 2, 3, 4, ...

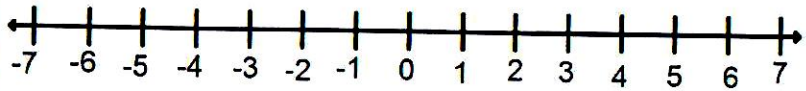
*natural numbers 1, 2, 3, 4, ... (also called counting #'s)

*integers ... -3, -2, -1, 0, 1, 2, 3, ...
→ whole #'s + their opposites



We can compare integers by writing inequalities:

-3 > -5 and -5 < -3



OR

We can compare integers by writing them in order:

Write these numbers from smallest to largest.
9, 0, -2, 3, -10

smallest -10, -2, 0, 3, 9 largest

Practice Problems

1) What is the smallest negative integer that is greater than -9 ?

-8

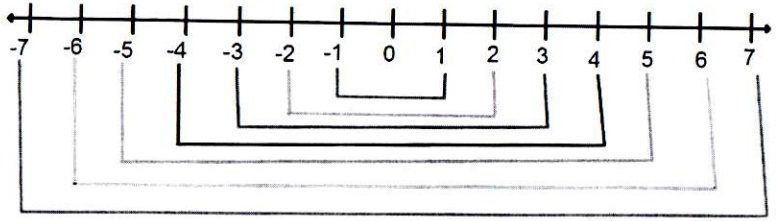
2) What is the median of these numbers? middle # when #'s are in order
-5 -8 7 -4 -6

-8 -6 -5 -4 7

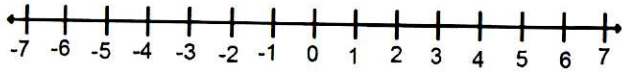
3) What is the greatest integer that is less than -1 ?

-2

On a number line, opposites are the same distance from 0 but in different directions from 0. Numbers that are opposites have a sum of 0. An integer and its opposite are also called additive inverses.



The absolute value of a number is the distance it is away from zero on a number line. Distance is always positive.



$|3|$ means the distance three is from zero on the number line so

$|3| = 3$

$|-3|$ means the distance negative three is from zero on the number line so

$|-3| = 3$

$-|3|$ means the opposite of the absolute value of three so $-|3| = -3$

Evaluate:

$|-20| + |20|$

$20 + 20$

40

$-|-24| + |-6|$

$24 + 6$

30

if $a = -5$ and $b = 6$

$b + |-a|$

$6 + |-(-5)|$

$6 + |5|$

$6 + 5$

11

if $a = 2$ and $b = 3$ and $c = -5$

$4|ab| - |-c|$

$4|2 \cdot 3| - |-(-5)|$

$4|6| - |5|$

$4 \cdot 6 - 5$

$24 - 5$

19

Sometimes? Always? or Never?

x = a positive number

X can be pos, neg, or zero

What is the additive inverse of $|-7|$? ↳ opposite

7

Sometimes? Always? or Never?

$|x| = x$

If $x = 4$ $|4| = 4$ $4 = 4$ ✓

If $x = -4$ $|-4| = 4$ not the same

If $x = 0$ $|0| = 0$ ✓

True or False ??

- a is always negative

If $a = -5$

$-a$ means

$-(-5)$

5 positive