

Math 7/8 Notes

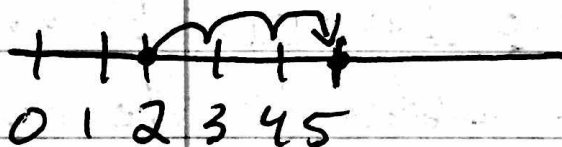
Lesson 2.1: Adding Integers

I. Adding Integers with the same sign

A. Examples

1) Evaluate $2 + 3$

Method 1:



Method 2: $|2| = 2$

$$|3| = 3$$

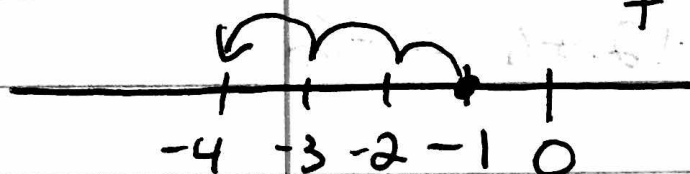
$$|2| + |3| = 5$$

Since both are positive then the answer is positive.

2) Evaluate $-1 + (-3)$

$$-1 - 3 = -4$$

Method 1:



Method 2: $|-1| = 1$

$$|-3| = 3$$

$$|1| + |3| = 3 + 1 = 4$$

Both are negative so the total is negative!

3) Student Examples

i) $5 + 4$

ii) $-2 + (-3)$

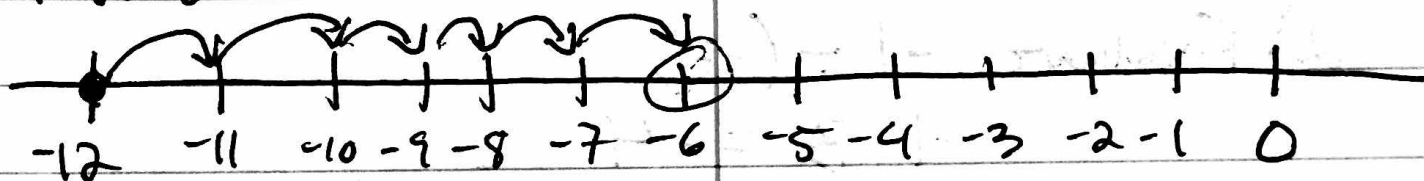
II. Adding Integers to their opposites
A. When an Integer is added to its opposite it becomes Zero.

B. Additive Inverse = ~~When two~~ ^{The opposite} integer which when added to the original integer makes zero.

III. Adding Two Integers with different signs

A. Evaluate $-12 + 6$

Method 1



$$-12 + 6 = -6$$

Method 2

$$|-12| = 12$$

$$|6| = 6$$

Subtract the lesser Absolute Value

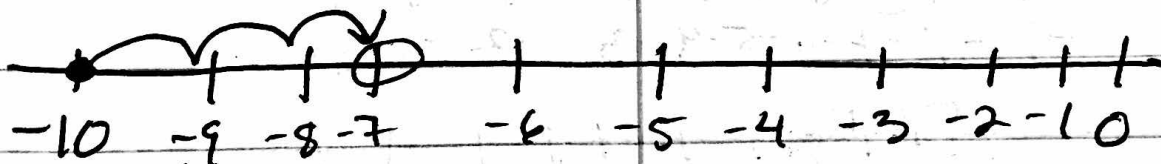
$$|12| - |6| = 6$$

Since -12 has the larger absolute value than 6 is negative $\Rightarrow -6$

$$|-12| - |6| = -6$$

B) Evaluate $-10 + 3$

Method 1



Method 2

$$|-10| = 10$$

$$|3| = 3$$

$$|-10| - |3| = 7$$

Since -10 has the larger absolute value
then 7 is negative

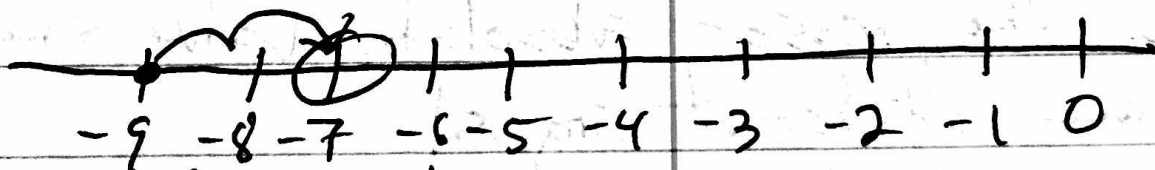
$$|-10| - |3| = -7$$

C) Student Example

$$-9 + 2$$

Method 1

$$-9 + 2 = -7$$



Method 2

$$|-9| = 9$$

$$|2| = 2$$

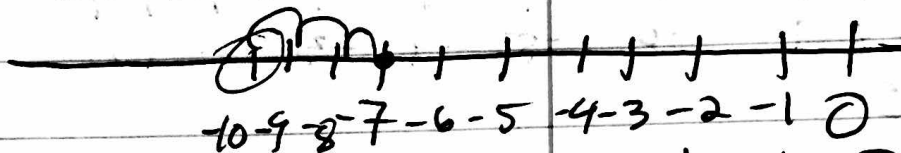
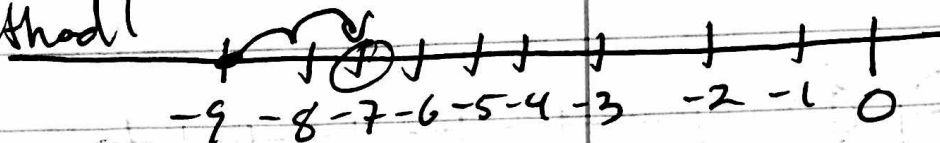
$$|-9| - |2| = 7$$

Since -9 has larger absolute value
then 7 is negative.
 $-9 + 2 = -7$

III Adding more than two integer with different signs

A. Evaluate $-9 + 2 + (-3)$

Method 1



Method 2: $|-9| = 9$ $|-3| = 3$
 $|2| = 2$

Combine the numbers with the same sign first.

$$|-9| + |-3| = ?$$

$$|-9| + |-3| = 12 \quad \text{Since both are negative.}$$

$$-9 + (-3) = -12$$

$$|-12| = 12$$

$$|-12| + |2| =$$

Subtract the lesser absolute value since they have different signs!

$$|-12| - |2| = 10$$

Since $|-12|$ is larger than the answer is negative.

$$-12 + 2 = -10$$