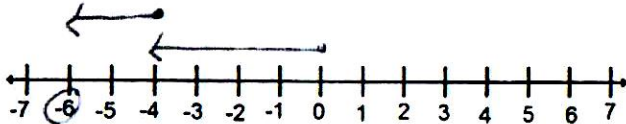


Math 7 Notes
(Subtraction of Integers)
Section 3-3

Subtract integers using a number line:

$-4 - 2 = -6$



Subtraction of Integers Modeled with Counters:

Let ● = -1 and ○ = +1

Example: $-3 - (-1)$

Draw three negative counters

Ask yourself: Do I have one negative I can take away?

Yes. Take away (cross out) one negative counter.

How many are left? 2 negatives



Example: $-2 - 5$

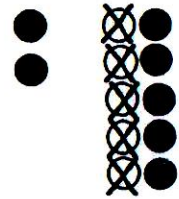
Draw two negative counters

Ask yourself: Do I have five positives I can take away? No.

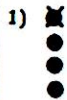
To get negatives without changing the problem, add five zero pairs

Now take away (cross out) five positives.

How many are left? 7 negatives



Write the number sentence modeled by these problem:



○ = +1
● = -1

$-4 - 1 = -5$

$-2 - 5 = -7$

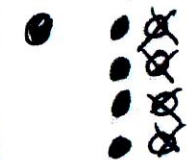
$-1 + 4 = 3$

Model these problems with counters:

4) $2 - (-3) = 5$

5) $-1 - 4 = -5$

6) $-3 - -2 = -1$



RULE: To SUBTRACT two integers ...

Rewrite the problem on the next line as a related addition problem.

$-5 - 8$

* Keep the 1st # the same. (Don't touch the leader!)

-5

* Change the subtraction sign to an addition sign.

$-5 +$

* Write the opposite (additive inverse) of the 2nd #.

$-5 + (-8)$

* Use the addition rules.

-13

1st # - 2nd #

1st # + Opposite of 2nd #

$4 - (-3)$

$4 + 3$

7

Keep
Change
Flip (to opposite)

$-5 - 2$ $-5 + -2$ (-7)	$4 - 7$ $4 + -7$ (-3)	$-3 - (-9)$ $-3 + 9$ (6)
$-9 - -4$ $-9 + 4$ (-5)	$-6 - 8$ $-6 + -8$ (-14)	$10 - (-2)$ $10 + 2$ (12)
$6 - (-1)$ $6 + 1$ (7)	$-8 - 2$ $-8 + -2$ (-10)	$14 - 20$ $14 + -20$ (-8)

To evaluate an algebraic expression for a specific variable:

*Rewrite the problem substituting the number for the variable

*Follow the order of operations

Evaluate if $a = -5$ $b = 2$

1) $a + b$

$\square + \square$

$-5 + 2$

(-3)

2) $6 + (a - b)$

$6 + (\square - \square)$

$6 + (-5 - 2)$

$6 + (-5 + -2)$

$6 + -7$
 (-1)

3) $-a - b$

$-\square - \square$

$-(-5) - 2$

$5 - 2$

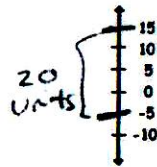
(3)

To find the difference between two numbers, subtract:

Larger # - Smaller #

OR

$|\text{smaller\#} - \text{larger\#}|$



Example: Find the difference between the maximum and minimum temperatures for Monday.

Monday		Higher Temp - Lower Temp	OR	$ \text{smaller\#} - \text{larger\#} $
6AM	10° F	15 - -5		$ -5 - 15 $
12 Noon	15° F			
6PM	5° F	15 + 5		$ -5 + -15 $
12 Midnight	-5° F			$ -20 $
		20		20