## Accelerated Math Notes
(Subtraction of Integers)
Section 2-3

Subtract integers using a number line:

1) $-4 - 2 =$
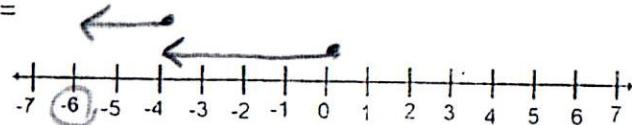
2) $1 - (-3) =$
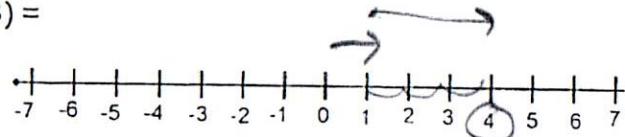

3) $-1 - 3 =$
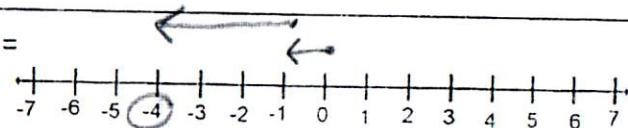
4) What's the subtraction problem?

$$\boxed{4} - \boxed{7} = \boxed{-3}$$
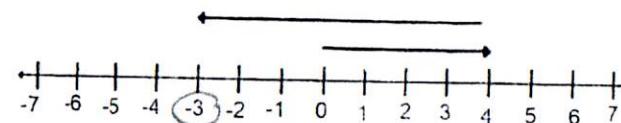
Subtraction of Integers Modeled with Counters:

Let $\bullet = -1$ and $\circ = +1$

Example: $-3 - (-1) \quad = -2$

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: $-2 - 5 = -7$

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
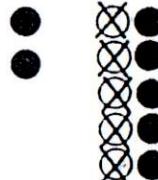
Write the number sentence modeled by these problem:

$\circ = +1$
$\bullet = -1$

1) $-4 - 1 = -3$

2) $-2 - 4 = -6$

3) $-1 + 4 = 3$

Model these problems with counters:

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

5) $-1 - 4$ = -5

6) $-3 - -2$ = -1
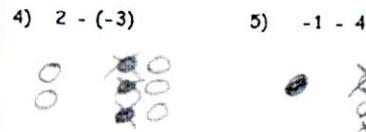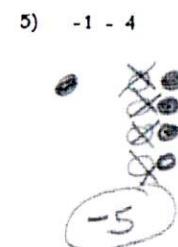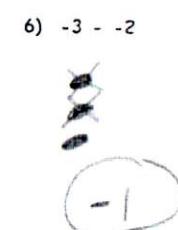
RULE: To SUBTRACT two integers ...

Rewrite the problem: 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

$$\boxed{1st\ \#} - \boxed{2nd\ \#}$$
$$\downarrow$$
$$\boxed{1st\ \#} + \boxed{\text{Opposite of 2nd \#}}$$

$$4 - (-3)$$
$$\downarrow$$
$$4 + 3$$
$$\boxed{7}$$

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

To find the **difference** between two numbers, subtract:

Larger #   -   Smaller #

OR

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

```
+ 15
+ 10
+ 5
+ 0
+ -5
+ -10
```
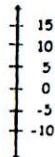
Example: Find the difference between the maximum and minimum temperatures for Monday.

Monday	
6AM	10° F
12 Noon	15° F
6PM	5° F
12 Midnight	-5° F

Higher Temp - Lower Temp

$15 \ - \ -5$

$15 \ + \ 5$

20

OR

$$|\text{smaller\#} - \text{larger\#}|$$
$$|-5 - 15|$$
$$|-5 + -15|$$
$$|-20|$$
$$20$$