ADDING & SUBTRACTING ON THE NUMBER LINE 2

Name: Key **Date:**_____ **Period:**_____

SECTION 2.2 SUBTRACTION OF INTEGERS

Big Ideas: How do we model subtraction on a number line?

In order to model subtraction on a number line, we use the **Four-Step Car Model** for subtraction.

Step 1: Place your car at the origin, 0, on the number line.

Step 2: Look at the sign on the first number. If the number is positive, point the car to the right, if the number is negative, point the car to the left. Move the car forward by a distance equal to the absolute value of the first number.

Step 3: Next, examine the sign on the second of the two numbers. If the number is positive, point the car to the right, if the number is negative, point the car to the left.

Step 4: Because you are subtracting, move the car backward, the distance equal to the absolute value of the second number

EXAMPLE 1

Compute the difference 5 – 2 using the Four-Step Car Model on the number line. Explain what you did in each step.

Step 1: Place the car at 0

Step 2: Face car to the right and move forward 5 units

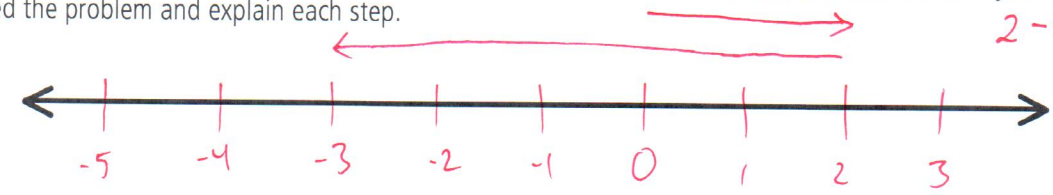
Step 3: Face car to the right

Step 4: Drive backwards 2 units (to 3)

EXAMPLE 2

Compute the difference 2 – 5 using the Four-Step Car Model. Use the number line to show how you solved the problem and explain each step.

2 - 5 = -3



Step 1: Place car at 0

Step 2: Face car right and drive forward 2 units

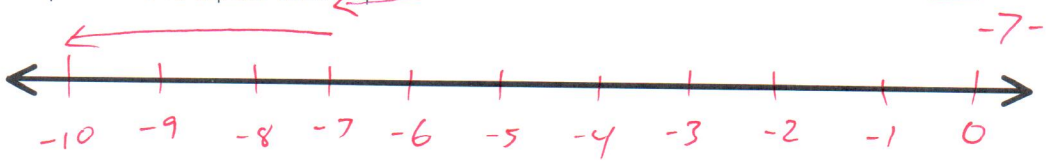
Step 3: Face car right

Step 4: Drive backward 5 units (to -3)

EXAMPLE 3

Compute the difference -7 – 3 using the Four-Step Car Model. Use the number line to show how you solved the problem and explain each step.

-7 - 3 = -10



Step 1: Place car at 0.

Step 2: Face car left and drive forward 7 units (to -7)

Step 3: Face car right

Step 4: Back up car 3 units (to -10)

EXAMPLE 4

Compute the difference 2 – (-5) using the Four-Step Car Model. Use a number line to show how you solved the problem and explain each step.

$2-(-5)=7$

Step 1: Place car at 0

Step 2: Face car right and move forward 2 units

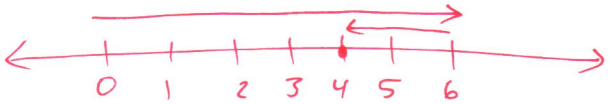
Step 3: Face car left

Step 4: Back up car 5 units (to 7)

PRACTICE EXERCISES

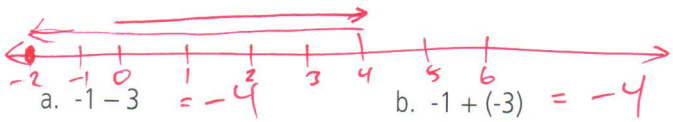
Use your number line to calculate each of the following exercises.

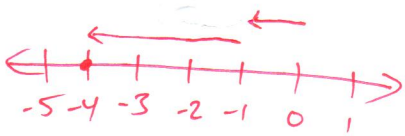
1. a. $6-2=4$ b. $6+(-2)=4$



2. a. $4-6=-2$ b. $4+(-6)=-2$

3. a. $-1-3=-4$ b. $-1+(-3)=-4$





What patterns do you notice in the above problems?

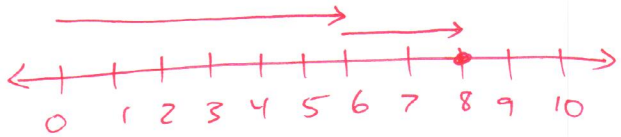
Subtracting a positive is like adding its negative (opposite)

4. a. $6 - (-2)$

8

b. $6 + 2$

8

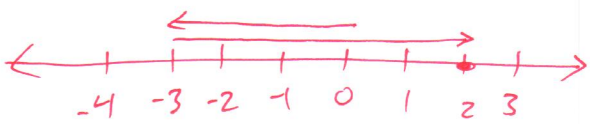


5. a. $-3 - (-5)$

2

b. $-3 + 5$

2

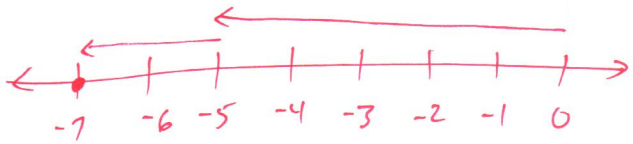


6. a. $-5 - 2$

-7

b. $-5 + (-2)$

-7

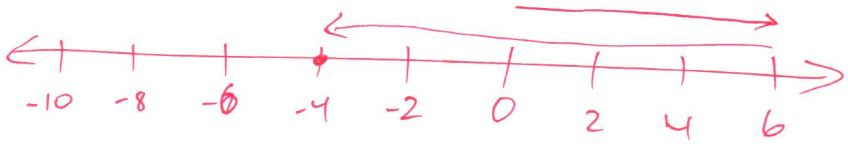


What patterns do you notice in the above problems?

Subtracting a negative is like adding its positive (opposite) pair

7. It was 6 °C at 9:00 a.m. The temperature dropped 10 °C over the next 4 hours. What was the temperature at 1:00 p.m.?

$6°C - 10°C = -4°C$



SUMMARY (What I learned today)