ADDING & SUBTRACTING ON THE NUMBER LINE 2

Name: Key Date: _____ Period: _____

SECTION 2.4 THE CHIP MODEL

VOCABULARY

DEFINITION	EXAMPLE
Zero pair: a sum of zero formed by $1+(-1)$	$1+(-1)=0$ ⊕ + ⊖ = 0

Big Idea: How is the chip model used to model addition and subtraction?

The Chip Model

The chip model uses different colored chips to represent numbers. For example, red chips are often used to represent negative integers, while yellow chips are often used to represent positive integers.

Using chips: yellow = ⊕ red = ⊖

How would you represent 3? ⊕⊕⊕

How would you represent -4? ⊖⊖⊖⊖

How would you represent zero? ⊕⊖

Is there another way to represent zero? ⊕⊕⊖⊖ or _____

How does this relate to the concept of a zero pair? Many pairs of ⊕ and ⊖ are still 0.

EXAMPLE 1

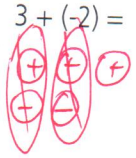
Find the sum or difference of each equation using positive and negative chips.

a. $3+2=$ 5

⊕⊕⊕ + ⊕⊕

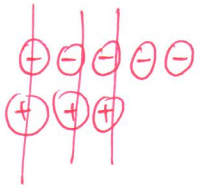
b. $3-7=$ 1

c. $3+(-2)=$ 1



EXAMPLE 2

Use chips to compute the sum $-5+3$. -2



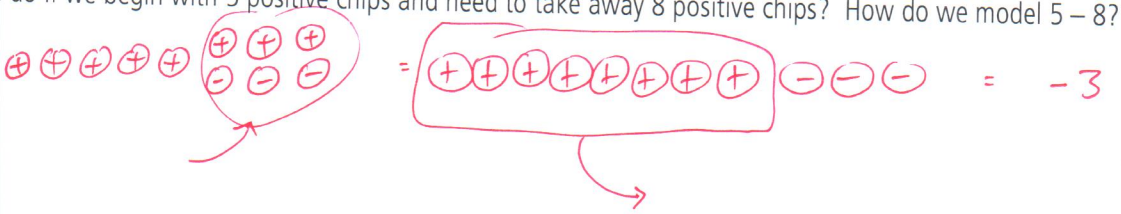
EXAMPLE 3

Use chips to compute the difference -5 – (-2).

-3

EXAMPLE 4

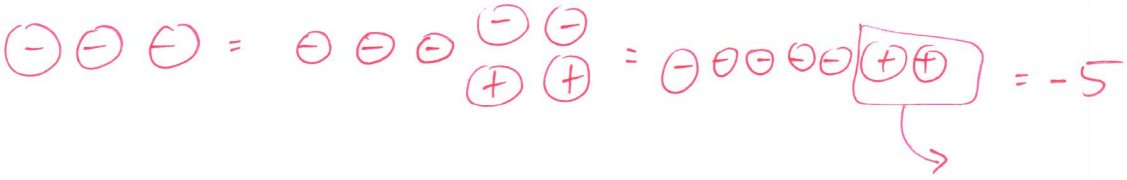
In order to model subtraction, we have assumed that we have chips in our pile to take away. But what do we do if we begin with 5 positive chips and need to take away 8 positive chips? How do we model 5 – 8?



= -3

EXAMPLE 5

Use chips to compute the difference -3 – 2.

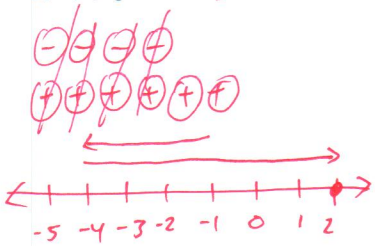


= -5

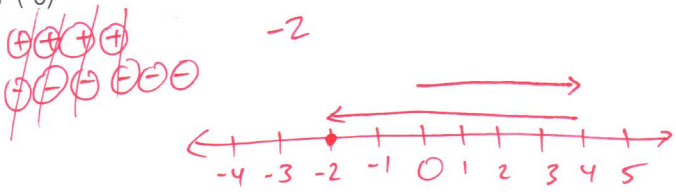
PRACTICE EXERCISES

1. Find the following sums or differences using the chip model. Check your answers using the number line model.

a. -4 + 6 = 2

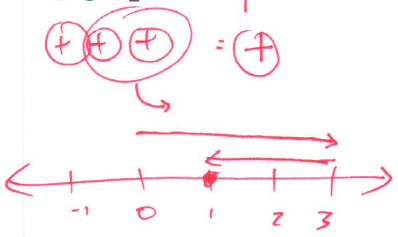


b. 4 + (-6)

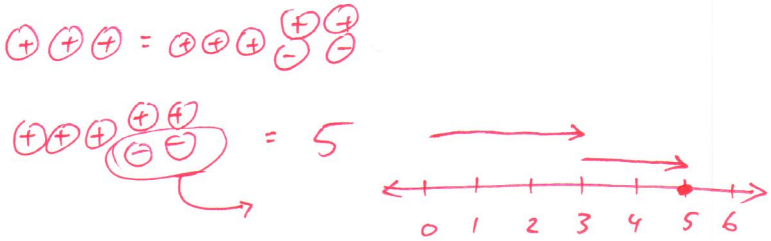


-2

c. 3 – 2 = 1

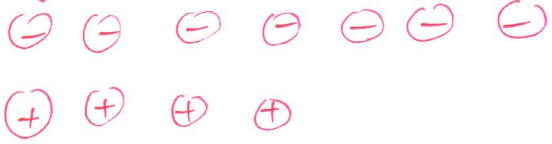


d. 3 – (-2)



2. Alexandra owes Amy $7. If Alexandra gives Amy $4, how much does she still owe Amy? Use the chip model to solve. Check your answer using the number line model.

Amy has -$7



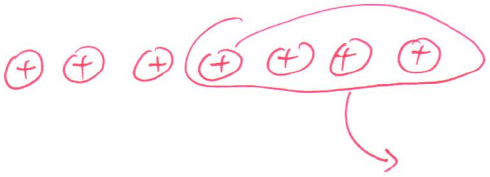
= -3 Amy has -$3

Alexandra gives Amy $4

Alexandra owes Amy $3

OR

Alexandra owes $7

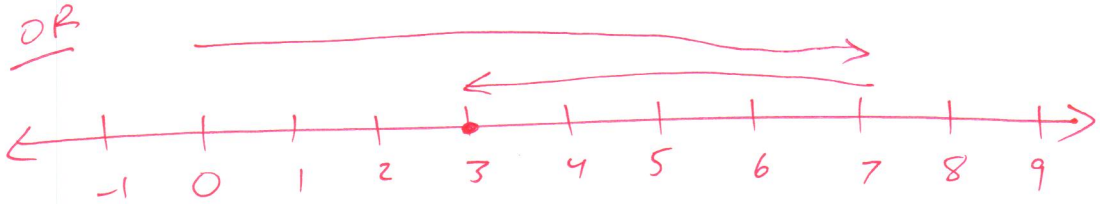


= 3

Alexandra pays back $4

Alexandra owes Amy $3

OR



SUMMARY (What I learned today)