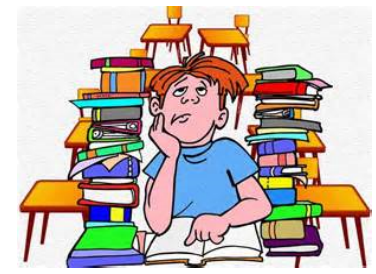
Warm Up Grade 8



Grade 7 Review of Adding Integers

Note on division: (+15) ÷ (+3) = (+5)

Dividend Divisor Quotient

Represent the following with a addition statement of integers, then find the sum:

a)Karen lost $15 but found $20

always show work

Now quiz

HW Solutions WS

Homework Solutions

8a) (+4) x (-8) = -32

8b) (-9) x (-6) = +54

8c) (-8) x (+7) = -56

8d) (-12) x (-1) = +12

9. Write 2 related multiplication equations for each division equation.

a) $(+27) \div (+3) = +9$

9a) (+9) x (+3) = +27

(+3) x (+9) = +27

b) $(+14) \div (-7) = -2$

9b) (-2) x (-7) = +14

(-7) x (-2) = +14

c) $(-21) \div (-3) = +7$

9c) (+7) x (-3) = -21

(-3) x (+7) = -21

d) $(-26) \div (+2) = -13$

9d) (-13) x (+2) = -26

(+2) x (-13) = -26

10) Find the answer to division.

Homework

Solutions

Write each division as 2 multiplication equations

Model one of the multiplication on a number line

a) $(+20) \div (+4) = +5$

(+4) x (+5) = +20

(+5) x (+4) = +20

b) $(-24) \div (-6) = +4$

(-6) x (+4) = -24

(+4) x (-6) = -24

c) $(-36) \div (+4) = (-9)$

(+4) x (-9) = --36

(-9) x (+4) = -36

a) 4 jumps of +5

b) 6 jump of -4

c) 4 jump of -9

11. The water level in a well dropped 5 cm each hour. The total drop in the water level was 30 cm. Use integers to find how long it took for the water level to change.

Homework

Solutions

Write an equation and state the answer in sentenced form.

11) Water level dropped 5 cm per hour. The total drop was 30 cm. How long did this take?

(-30) ÷ (-5) = +6

It took 6 hours for the water level to drop a total of 30 cm.

12) Write an equation for the following word problem and state the answer in sentenced form.

Maurice spent a total of $18 in 3 days, then how much did he spend per day?

12) (-18) ÷ (+3) = -6

The total debt to the librarian by 3 students was $18. If each person owed the same amount then how much did each student owe?

13) Raj made withdraws of $19 from his account. He withdrew a total of $133. Use integers to find out how many withdraws Raj made. (Write an equation)

Homework

Solutions

14) a) $(-8) \div (-4)$ (+2)

b) $\frac{-9}{+3}$ (-3)

c) Divide: $\frac{+96}{-6}$ (-16)

15) Find the answer

a) $(-45) \div (+5)$ = -9

b) $(+16) \div (+8)$ = +2

c) $(+24) \div (-2)$ = -12

d) $(-30) \div (-6)$ = +5

16) Find the quotient

a) $(+12) \div (+4)$ = (+3)

b) $(-15) \div (-3)$ = (+5)

c) $(-18) \div (+9)$ = (-2)

d) $(+81) \div (-9)$ = (-9)

e) $(+72) \div (-8)$ = (-9)

f) $(-64) \div (-8)$ = (+8)

g) $(-14) \div (+1)$ = (-14)

h) $(+54) \div (-6)$ = (-9)

i) $(-27) \div (-3)$ = (+9)

j) $(+32) \div (+4)$ = (+8)

Homework
Solutions

17. **a)** Use each multiplication fact to find a related quotient.

i) Given $(+8) \times (+3) = +24$,
find $(+24) \div (+3) = \square$. (+8)

ii) Given $(-5) \times (-9) = +45$,
find $(+45) \div (-9) = \square$. (-5)

iii) Given $(-7) \times (+4) = -28$,
find $(-28) \div (+4) = \square$. (-7)

18) Write 2 related division facts for each multiplication fact.

a) $(-6) \times (+5) = -30$
(-30)÷ (-6) = (+5)
(-30)÷ (+5) = (-6)

b) $(+7) \times (+6) = +42$
(+42)÷ (+6) = (+7)
(+42)÷ (+7) = (+6)

c) $(+9) \times (-4) = -36$
(-36)÷ (-4) = (+9)
(-36)÷ (+9) = (-4)

d) $(-4) \times (-8) = +32$
(+32)÷ (-8) = (-4)
(+32)÷ (-4) = (-8)

Homework

Solutions

19. Divide.

a) $\frac{-20}{-5}$ =(+4) b) $\frac{+21}{-7}$ =(-3)

c) $\frac{-36}{+4}$ =(-9) d) $\frac{0}{-8}$ =(0)

20.) Copy each equation. Replace $\square$ with an integer to make the equation true.

a) $(+25) \div \boxed{(+5)} = +5$

b) $\boxed{(-90)} \div (-9) = +10$

c) $(-63) \div \boxed{(+9)} = -7$

d) $\boxed{(-21)} \div (-3) = +7$

e) $\boxed{(-60)} \div (+5) = -12$

f) $\boxed{(+49)} \div (-7) = -7$

g) $\boxed{(-48)} \div (-6) = +8$

h) $\boxed{(+44)} \div (-4) = -11$

Homework Solutions

21.) Nirmala borrowed $7 every day. She now owes $56. For how many days did Nirmala borrow money?

a) Write this problem as a division expression using integers.

(-56)÷ (-7) = (+8)

b) Solve the problem.

She borrowed the money for 8 days.

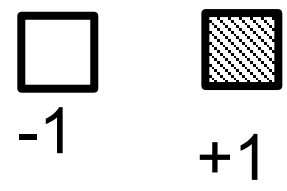
22) The temperature dropped a total of 15°C over a 5-h period. The temperature dropped by the same amount each hour. Find the hourly drop in temperature.

(-15)÷ (+5) = (-3)

It dropped 3 degrees each hour.

Rules From Grade 7 Integer Unit

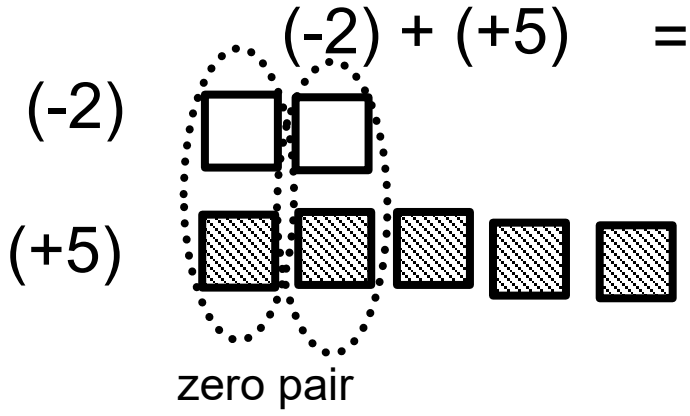
Unit 2: Integers



Adding with tiles

-When you add integers you represent each integer in the addition statement. (Remove zero pairs and state answer)

(-2) + (+5) = +3



Adding with Number lines

- Always start at zero

- Count the bumps in the road for the first integer

Move to the right ⇒ if positive

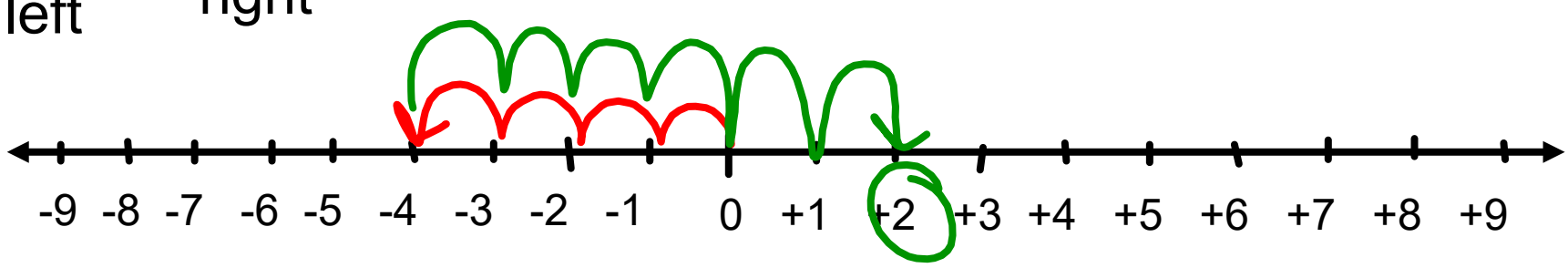
Move to the left ⇐ if negative

- When adding the second integer we count the bumps on the road in the direction given from where we ended with the first integer.

-Where you end up is the answer.

(-4) + (+6)

left right

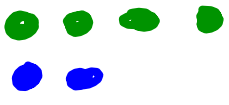


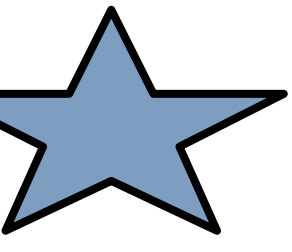
Modeling Integer Addition

⊕ Shaded
⊖ unshaded

(+4) + (+2)

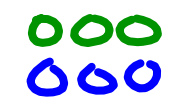
= (+6)

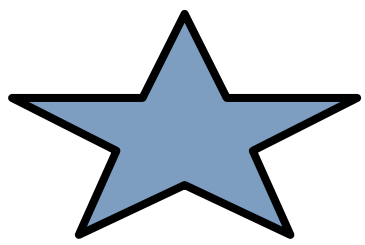




(-3) + (-3)

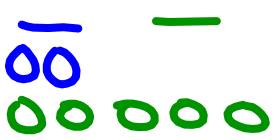
= (-6)

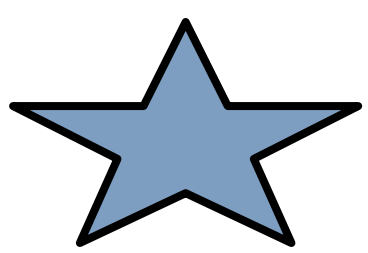


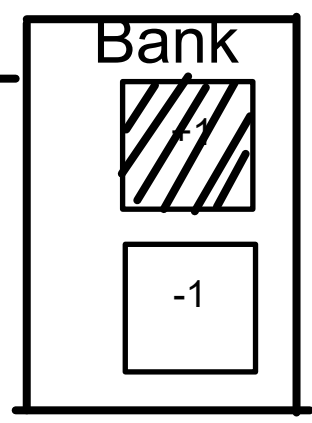


(-2) + (-5)

= (-7)

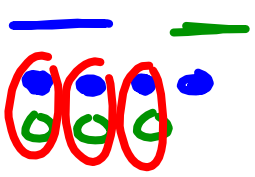


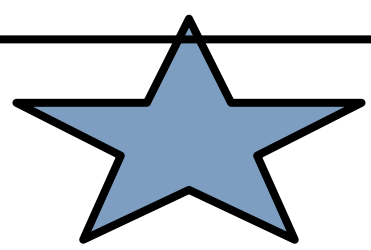




(+4) + (-3)

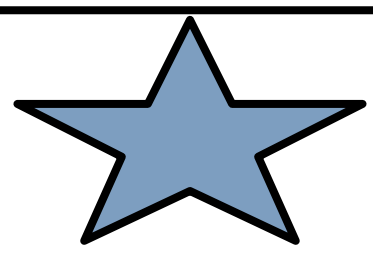
= (+1)





(-8) + (+4)

= (-4)



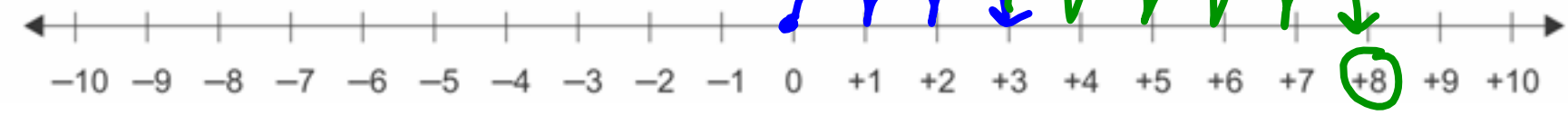
Modelling Integer Addition using Number Lines

We have modelled integer addition using algebra tiles, now we will add using number lines. Remember with number lines positive is to the right and negative is to the left.

(a) (+3) + (+5)

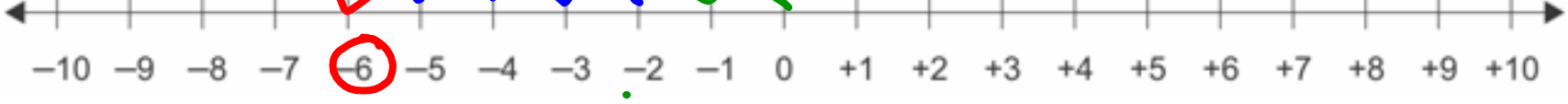
Always start at zero

= (+8)



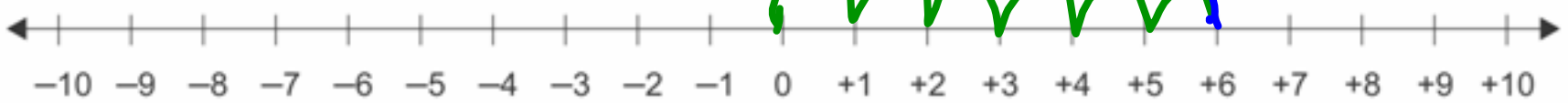
(b) (-2) + (-4)

= (-6)



(c) (+

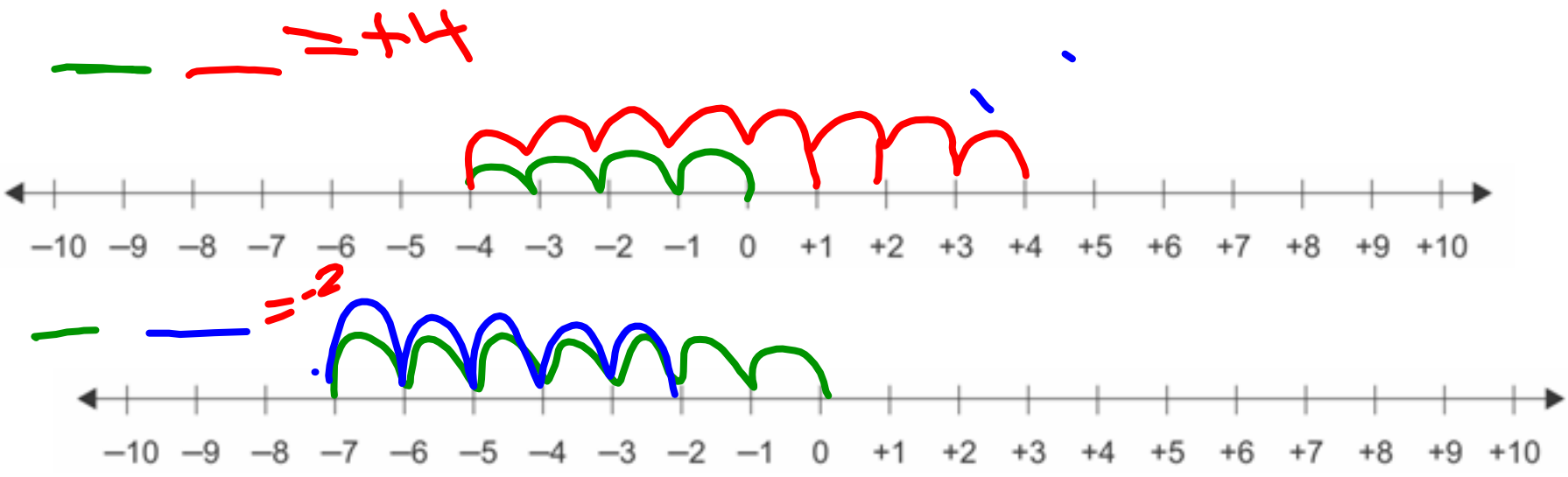
= +3



(d) (-

= +4

= -2



Adding with Rules

-When we add two integers with the same signs:

Ex) 1

(-3) + (-7)= -10

both signs (-)

Thinking

3+7 = 10
both signs (-)

so answer is -10

Ex) 2

(+4) + (+8) = +12

both signs (+)

Thinking

4+8 = 12
So answer is +12

Both signs the same then just add both numbers together, ignoring the sign, and the answer has to have the same sign as the original integers

(+) + (-)

-When we add two integers with the **different signs**:

Step 1) Cover up the signs and ask yourself which number is larger.

The answer will have the sign of the bigger number

Step 2) Since they are different, ignore the sign and find the difference between the two numbers (Big minus small). That is your number for the answer

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

Different signs

step 1) When you cover up the signs, we have 12 & 3.

12 is Larger so our answer will have the sign on 12 which is (-)

step 2) 12 - 3 = 9

Ex) (+2) + (-7) = -5

Different signs

Step 1) between 2 & 7 , 7 is bigger so the sign on 7 goes with the answer (-)

Step 2) 7-2 = 5

Add the following using the rules.

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

(b) (-8) + (-3)= -11

(c) (-15) + (-6) = -21

(d) (+14) + (-4) = +10

(e) +6 + (-12) = -6

(f) (-25) + (+16) = -9

(g) (-17) +(-7) = -24

(h) (+30) + (-21) = +9

(i) (-8) + (+12) = +4

(j) +6 + (+8) = +14

(k) (-16) + (+14) = -2

(l) (+20) + ( ) = +13

Rules for Adding Integers

**When you add two positive integers,
add the numbers and your answer will be positive.**

Ex. (+6) +(+8) = +14 **(+11) + (+9) = +20**

**When you add two negative integers,
add the numbers and your answer will always be negative.**

Ex. (-5) + (-7) = -12 **(-8) + (-10) = -18**

**When you add a positive integer and a negative integer,
subtract the numbers, and keep the sign of the larger number.**

Ex. (-6) + (+8) = +2 **(+4) + (-9) = -5**

(+9) + (-12) = -3 **(-15) +(+20) = +5**

Model #1ab with tiles then rest use rules

#2 ac model with number lines then rest rules

#3, 4, 5, 6,(Use rules)

Worksheet 235

Adding Integer Review

Grade 8 Math SHEET 235

Review of Grade 7 Adding Integers & Modeling

1.For each of the following Model with tiles

1.(+5) + (+1) b. (-1) + (+8) c. 0 + (-5) d. (-7) + (+4)

e. (-2) + (-2) f. (-6) + (-5) g. (+4) + (-4) h. (-12) + (+8)

2) Use number lines to model each addition below (Use number line sheet provided)

1.(+6)+ (-4) b. 0 + (-2) c. (-3) + (-7) d. (-8) + (+5) e. (-9) + (+9) f. (+12) + (+6)

2. (-14) + (-1) h.(+3) + (-14)

3) Fill in the blank with the correct integer.

1.(+5) + ___ = +8 b. ___ + (-3) = -4 c. (+3) + ____ = +1

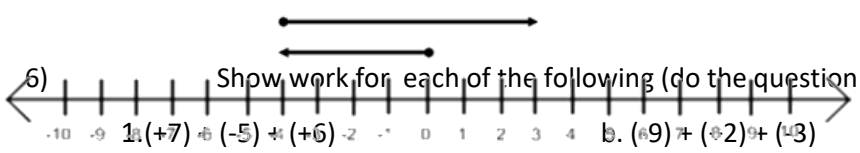
2.(-5) + ____ = -3 e) (+2) + ___ = +1 f. ____ + (-6) = 0

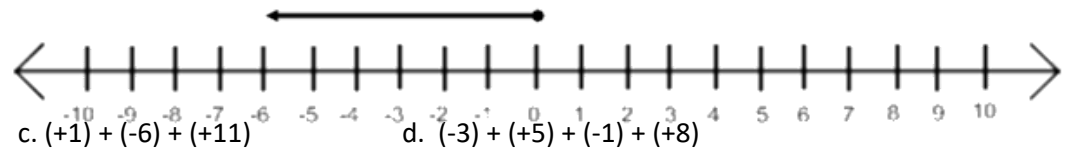
4) Add the following using addition rules

1.(+2) + (+3) b. (-3) + (+4) c. (-4) + (-5) d. (+8) + (-1)

e. (-10) + (-6) f. (+4) + (-13)

5) Write the addition equation modeled by each number line.





6) Show work for each of the following (do the question in steps)

1.(+7) + (-5) + (+6) b. (-9) + (-2) + (-3) c. (+1) + (-6) + (+11) d. (-3) + (+5) + (-1) + (+8)

Which Number is larger? (Use <,>, =)

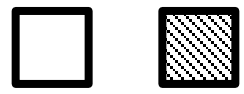
(-199) ☐ (-1)

Word problems

Represent the following as addition using integers

Bill owed his mom $15 and then borrowed another $5. What is his sum?

The temperature is 15°C at lunch then drops 4°. What is the new temperature?



Subtracting with tiles

- Always model the first integer

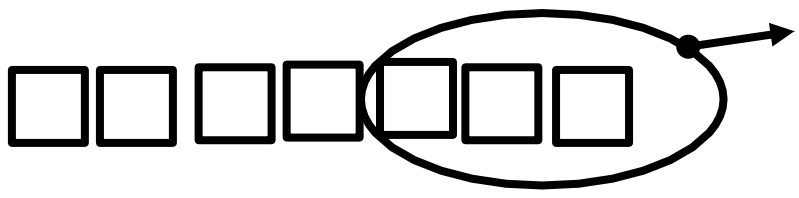
-Remove second integer

*if there are not enough to remove then add zero pairs of tiles and does not change the question

Ex1) (-7) - (-3)

Start with 7 negative tiles, then ask yourself if you can remove 3 negative titles. YES

To show removing, circle and point arrow away



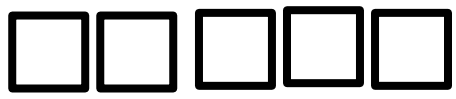
= -4

What is left over is the answer.

Ex2) (-5) - (+2)

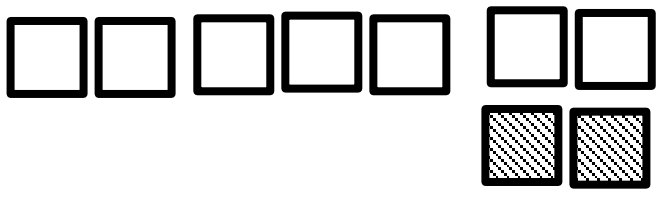
Step 1) Start with 5 negative tiles, then ask yourself if you can remove 2 positive titles. NO

To show removing, circle and point arrow away

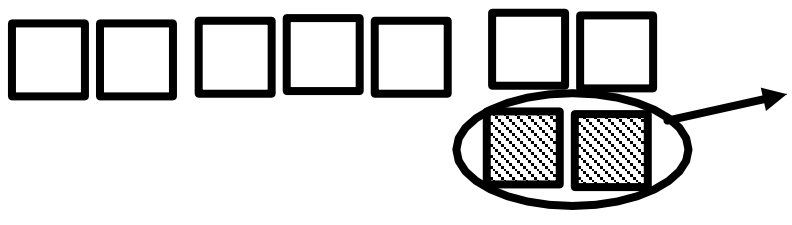


Step 2)

Need to add zero pairs (two positive and 2 negative)



Step 3) Now remove 2 positive tiles



= -7

Subtracting Rule

- Keep the sign on the first integer and "ADD the OPPOSITE"

Keep sign the same on the first integer
change the subtraction to addition and
change the sign on the second integer.
THEN USE ADDITION RULES

Ex 1) (+9) - (-5)

(+9) + (+5) ⟷ must show this step

now addition rule

(+9) + (- 5) = +4