

Warm up

Write the numbers in increasing order.

1. \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark
 $\underline{-0.03}$, 0.2 , 0 , 2.0 , $\underline{-0.2}$, $\underline{-0.02}$ (Label as Wednesday on warm up sheet)

-0.2 , -0.03 , -0.02 , 0 , 0.2 , 2.0

Graph the numbers on a number line. Then write two inequalities that compare the two numbers.

2. -7 and 2



$$-7 < 2$$

$$2 > -7$$

Evaluate the expression.

3. $-\left|-\frac{1}{2}\right| - 4 = -\frac{1}{2} + 4 = -4\frac{1}{2}$

Homework Questions?

On the top of your paper (by your name) rate yourself for this section:

4 - I can summarize the concepts and explain it to others

3 - I can apply the concept to answer questions correctly

2 - I can apply the concepts but with some mistakes

1 - I need help and know how to apply the concept

0 - I can't apply the concept, even with help

Rating of 0-2 is a warning signal to me that you need help

Desks

2.2 Addition of Real Numbers

- Goals:**
- Add real numbers using a number line or addition rules.
 - Use addition of real numbers to solve real-life problems.

EQ: What does "Who Won? By How Much?" help with?

The Unit Organizer NAME _____
DATE _____ Mo/Date/Year

④ BIGGER PICTURE ← Algebra 9/Algebra 9 Concepts →

② LAST UNIT Experience None	① CURRENT UNIT Properties of Real Numbers	③ NEXT UNIT Experience Solving Linear Equations
⑧ Student Activities or Assignments 2.1 2.2 2.3 2.5 2.6	⑤ UNIT MAP 	
⑦ UNIT SELF-TEST QUESTIONS 1. How do you add, subtract, and multiply integers? 2. How do you use the distributive property to evaluate and simplify variable expressions? 3. How do you simplify a variable expression by combining like terms? 4. How can absolute value be used to evaluate expressions?	<p>Simplify</p> <p>Calculate</p> <p>Compare and contrast</p>	⑥ UNIT RELATIONSHIPS

RULES OF ADDITION

★ TO ADD TWO NUMBERS WITH THE SAME SIGN:

STEP 1 Add their absolute values.

STEP 2 Attach the common sign.

Example: $-4 + (-5)$ **Step 1** \rightarrow $|-4| + |-5| = 9$ **Step 2** \rightarrow -9

★ TO ADD TWO NUMBERS WITH OPPOSITE SIGNS:

STEP 1 Subtract the smaller absolute value from the larger absolute value.

STEP 2 Attach the sign of the number with the larger absolute value.

Example: $3 + (-9)$ **Step 1** \rightarrow $|-9| - |3| = 6$ **Step 2** \rightarrow -6

Who Won? By how much?

$4 + 5 = 9$

PROPERTIES OF ADDITION

★ COMMUTATIVE PROPERTY

The order in which two numbers are added does not change the sum.

$$a + b = b + a$$

Example: $3 + (-2) = -2 + 3$

ASSOCIATIVE PROPERTY

The way you group three numbers when adding does not change the sum.

$$(a + b) + c = a + (b + c)$$

Example: $(-5 + 6) + 2 = -5 + (6 + 2)$

IDENTITY PROPERTY

The sum of a number and 0 is the number.

$$a + 0 = a$$

Example: $-4 + 0 = -4$

PROPERTY OF ZERO (INVERSE PROPERTY)

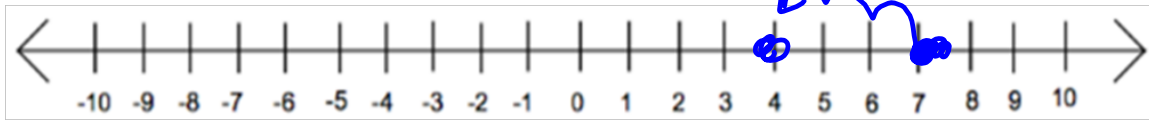
The sum of a number and its opposite is 0.

$$a + (-a) = 0$$

Example: $5 + (-5) = 0$

Use a number line to find the sum.

$$1. 7 + (-3) = 4$$



$$2. -8 + 2 = -6$$



Example 2: Finding a Sum

Find the sum.

$$3. -5 + 7$$

2

$$4. -6 + 13 + (-3)$$

$$-9 + 13 = 4$$

$$5. -14 + (-9)$$

-23

$$6. 2 + (-7)$$

-5

$$7. -21 + 15$$

-6

$$8. -12 + 4 + (-2)$$

$$-12 + 2 = -10$$

Try It Use the rules of addition to find the sum.

a. $1.2 + (-8) + 2.8$

$$4 + -8 = -4$$

b. $\frac{3}{4} + 3 + \left(-\frac{3}{4}\right)$

$$0 + 3 = 3$$

Real World Application

In the game that decides the football championship, your team needs to gain 14 yards to score a touchdown and win. Your team's final four plays result in a 9 yard gain, a 5 yard loss, a 4 yard gain, and a 5 yard gain as time runs out. What can you conclude?

$$9 + -5 + 4 + 5$$

$$9 + 4 = 13 \text{ yd gain}$$

so Lost by 1 yd.

2.3 Subtraction of Real Numbers

- Goals:**
- Subtract real numbers using the subtraction rule.
 - Use subtraction of real numbers to solve real-life problems.

Vocabulary

Terms:

In a sum, the parts that are added.

ex: $\underbrace{2x}_1 + \underbrace{-6}_2 + \underbrace{3y}_3 + \underbrace{-5z}_4$

SUBTRACTION RULE

To subtract b from a , add the opposite of b to a .

$$a - b = a + (-b)$$

Example: $3 - 5 = 3 + (-5)$

The result is the difference of a and b .

"Add the opposite"

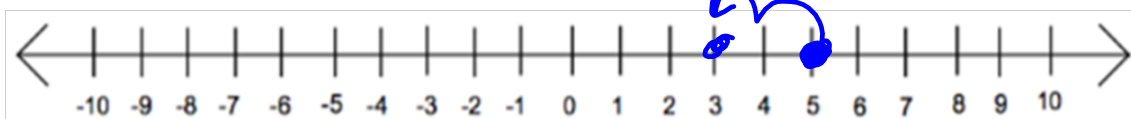
ex: $-3 + 10 = 7$

$-7 + 3 = -4$

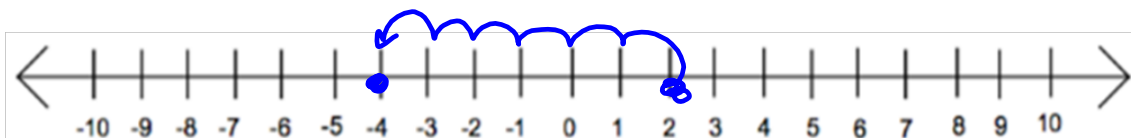
Subtracting Two Real Numbers

Use a number line to find the difference.

1. $5 - 2 = 3$



2. $2 - 6 = -4$



Subtraction of Real Numbers

Find the difference.

3. $14 - |-11|$

$$14 + -11$$

$$\textcircled{3}$$

4. $2\frac{3}{4} + 1 - \bar{2}$

$$\frac{3}{4} + 1$$

$$\textcircled{1\frac{3}{4}}$$

5. $-5 + 10 - (-3)$

$$5 + 3$$

$$\textcircled{8}$$

Try It Find the difference.

6. $-5 + 8 - 3\frac{1}{2}$

$$-8\frac{1}{2} + 8$$

$$\textcircled{-\frac{1}{2}}$$

7. $-13 - |-6|$

$$-13 - \bar{6}$$

$$\textcircled{-19}$$

8. $-5 + 7 - (-5)$

$$0 + 7 = \textcircled{7}$$

Real World Application

The water in a pool is 47.3 inches deep on Monday. On Tuesday, 2.1 inches of depth is splashed out. On Wednesday, the depth decreases 11.3 inches due to a leak. On Thursday night, the leak is fixed and 12.9 inches of depth is added overnight. Write and evaluate an expression to find the depth of the water in the pool on Friday morning.

$$\underline{47.3} - \underline{2.1} - \underline{11.3} + \underline{12.9}$$

$$60.2 - 13.4 = \textcircled{46.8 \text{ in.}}$$

Summary

EQ: What does "Who Won? By How Much?" help with? *pos/neg.*

Helps w/ Adding

Integers

2.2 & 2.3 Homework worksheet

***Book Cover**