

Warm up

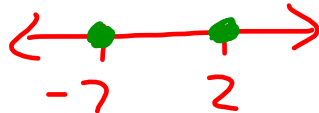
Write the numbers in increasing order.

1. $\underline{-0.03}$, $\underline{0.2}$, 0 , $\underline{2.0}$, $\underline{-0.2}$, $\underline{-0.02}$

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

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. $0 \left| -\frac{1}{2} \right| - 4$

$$-\frac{1}{2} + 4 = \left(-4\frac{1}{2}\right)$$

Homework Questions?

26) \$90 to buy CD's
each CD is \$15

1	15
2	30
3	
4	60
6	90

$$\frac{90}{15} = \left(6\right) \text{ CD's}$$

27) $5.4(30) = 162 \text{ calories}$

$$5.4(4) - 4 > 18$$

$$21.6 - 4 > 18$$

$$17.6 > 18$$

No, not soln.

$$9x$$

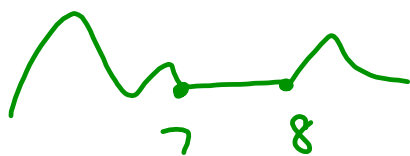
$$x > 20$$

$$9 \cdot x$$

$$9(x)$$

$$\frac{9}{5}$$

$$ab < 10$$



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

The Unit Organizer		NAME _____	
		DATE _____	
← 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 2.4 2.5 2.6 2.7	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?	Simplify Calculate Compare and contrast		⑥ UNIT RELATIONSHIP

2.3 Adding Real Numbers

Goals: • Add real numbers using a number line or the rules of addition.

EQ: How does "*Who won? By how much?*" work?

RULES OF ADDITION

To add two numbers with the same sign:

STEP 1 *Add* their absolute values.

STEP 2 Attach the common sign.

To add two numbers with opposite signs:

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

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

ex: $3 + -7 = -4$

"Who won?" ^{pos/neg.}
 "By How Much?"
 # they win by

PROPERTIES OF ADDITION

CLOSURE PROPERTY The sum of any two real numbers is a unique real number.

$a + b$ is a unique real number

Example: $4 + 2 = 6$

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 three numbers are grouped 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: $-4 + 0 = -4$

INVERSE PROPERTY The sum of a number and its opposite is 0.

$a + (-a) = 0$

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

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

4. $8 + (-10) + 12$

$20 + -10$

10

5. $-6 + 2 + (-4)$

$-10 + 2$

-8

6. $\frac{3}{4} + \left(-\frac{1}{4}\right) + \frac{1}{4}$

$\frac{3}{4} + 0 = \frac{3}{4}$

Summary

EQ: How does "Who won? By how much?" work?

↓
pos./neg.
answer

By how much?
the
team won
by

2.4 Subtracting Real Numbers

Goals:

- Subtract real numbers using the subtraction rule

EQ: Give an example of the subtraction rule.

Vocabulary

Term:

+

The parts that are added together

ex: $3x^2 + 2x + 1$

$\underbrace{\quad}_1 \quad \underbrace{\quad}_2 \quad \underbrace{\quad}_3$

SUBTRACTION RULE

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

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

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

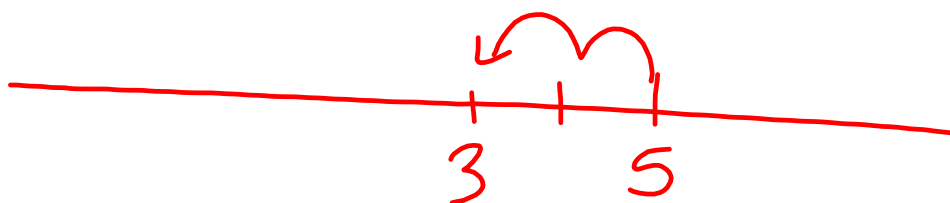
The result is the difference of a and b .

"to change $-$ to $+$ we add the opposite."

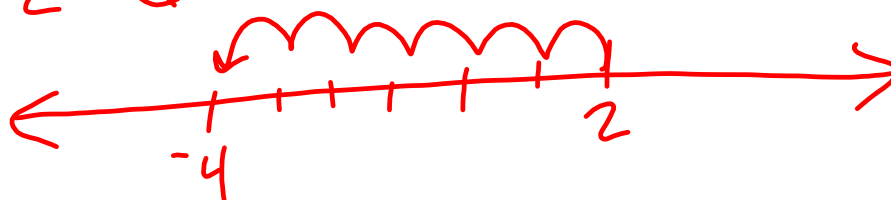
ex: $1 + 8 = 1 + 8 = 9$

$$1 - 8 = 1 + (-8) = -7$$

$$5 - 2 = 3$$



$$2 - 6 = -4$$

**Example 1: Use the Subtraction Rule**

Find the difference.

a. $-13 - 4$

$$-13 + -4$$

$$\textcircled{-17}$$

b. $-4 - (-13)$

$$-4 + 13$$

$$\textcircled{9}$$

Example 2: Expressions with More than One Subtraction

*Hint: Use the left-to-right rule to evaluate the expression

Evaluate the expression $-5 - 3 - (-1)$

$$\begin{array}{l}
 -5 + -3 + 1 \\
 \quad \quad \quad \smile \\
 -8 + 1 \\
 \quad \quad \quad \circlearrowleft \\
 -7
 \end{array}$$

Try It

Use the subtraction rule to find the difference.

1. $-3 - 8$

$$-3 + -8$$

$$\circlearrowleft -11$$

2. $-12 - (+5)$

$$-12 + 5$$

$$\circlearrowleft -7$$

3. $-7 - 4 - (-9)$

$$-7 + -4 + 9$$

$$\quad \quad \quad \smile$$

$$-11 + 9$$

$$\circlearrowleft -2$$

Evaluating Functions

Evaluate the function when $x = -2, -1, 0,$ and $1.$

$$y = -6 - x$$

Summary

EQ: Give an example of the subtraction rule.

Homework

*Finish Absolute Value wkst

*Adding/Subtracting Integers wkst

*BOOK COVER

Homework 2.3 page 81

27 - 35 odd, 41 - 45 odd, 54

Homework 2.4 page 89

15, 17, 21, 27, 31, 33, 35, 43, 55