

Subtracting Integers Note Page

The Rule: *Change the subtraction sign to an addition sign, and ALSO change the very next number's sign to the opposite sign. THEN, following the adding integers rules.*

Simply put: Change it to **"Adding the Opposite"** or **"Stay, Flip, Flip"**

Proof that changing the subtraction sign to "Adding the Opposite" works:

What is $4 - 3$? 1

Now compute $4 - 3$ but change it to "Adding the Opposite": $4 - 3$ will become $4 + (-3)$

Now following the adding integers rules for $4 + (-3) = 1$

Examples: $-7 - 5$ will become $-7 + (-5) = -12$ $-3 - (-6)$ will become $-3 + (+6) = 3$

$4 - 9$ will become $4 + (-9) = -5$ $8 - (-4)$ will become $8 + (-4) = 4$

Practice problems:

1) $-4 - 6$ becomes <u>$-4 + (-6)$</u> . The final answer is <u>-10</u> <i>**same sign add, keep the sign</i>
2) $6 - 9$ becomes <u>$6 + (-9)$</u> . The final answer is <u>-3</u> <i>**different sign subtract, keep bigger sign</i>
3) $5 - (-4)$ becomes <u>$5 + 4$</u> . The final answer is <u>9</u> <i>**same sign add, keep the sign</i>
4) $-2 - (-3)$ becomes <u>$-2 + 3$</u> . The final answer is <u>1</u> . <i>**different sign subtract, keep bigger sign</i>

****now follow the rules for adding integers!****

More practice:

- 5) $-5 - 4 = \underline{-9}$ (Same signs add and keep the sign) $-5 + (-4)$
- 6) $3 - 8 = \underline{5}$ (Different signs, subtract and keep the big number's sign) $3 + (-8)$
- 7) $-1 - (-5) = \underline{4}$ (Different signs, subtract and keep the big number's sign) $-1 + 5$
- 8) $6 - (-2) = \underline{8}$ (Same signs add and keep the sign) $6 + 2$
- 9) $-3 - 0 = \underline{-3}$ 10) $-8 - 2 = \underline{-10}$ 11) $-4 - (-6) = \underline{2}$ 12) $-1 - 1 = \underline{-2}$
- 13) $-5 - 2 = \underline{-7}$ 14) $7 - 2 = \underline{5}$ 15) $-2 - 6 = \underline{-8}$ 16) $-5 - 5 = \underline{-10}$
- 17) $-6 - 3 = \underline{-9}$ 18) $-4 - (-6) = \underline{-2}$ 19) $0 - (-4) = \underline{4}$ 20) $8 - (-2) = \underline{10}$

*****Example Problems above *rewritten as addition* problems using the "ADD THE OPPOSITE STRATEGY!!"*****

- | | | | |
|---------------|---------------------|---------------|---------------|
| 9. $-3 + 0$ | 10. $-8 + -2$ | 11. $-4 + 6$ | 12. $-1 + -1$ |
| 13. $-5 + -2$ | 14. can remain sub. | 15. $-2 + -6$ | 16. $-5 + -5$ |
| 17. $-6 + -3$ | 18. $-4 + 6$ | 19. $0 + 4$ | 20. $8 + 2$ |

Lesson 2-4

Pages 95-99

Add. **REMEMBER the RULE: Same Sign ADD, Different SUBTRACT**

1. $-4 + 8$ 4

2. $14 + 16$ 30

3. $-7 + (-7)$ -14

4. $-9 + (-6)$ -15

5. $-18 + 11$ -7

6. $-36 + 40$ 4

7. $42 + (-18)$ 24

8. $-42 + 29$ -13

9. $18 + (-32)$ -14

10. $12 + (-9)$ 3

11. $-24 + 9$ -15

12. $-7 + (-1)$ -8

#'s: 1, 5, 6, 7, 8, 9, 10, 11 -- Different Sign Subtract

#'s: 2, 3, 4, 12 -- Same Sign Add

Evaluate each expression if $a = 6$, $b = -2$, $c = -6$, and $d = 3$.

13. $-96 + a$ -90

14. $b + (-5)$ -7

15. $c + (-32)$ -38

16. $d + 98$ 101

17. $-120 + b$ -122

18. $-120 + c$ -126

19. $5 + b$ 3

20. $a + d$ 9

21. $c + a$ 0

22. $d + (-9)$ -6

23. $b + c$ -8

24. $d + c$ -3

Substitution shown and rule to follow ~

13. $-96 + 6$ different sign: Sub. 14. $-2 + (-5)$ same sign: Add 15. $-6 + (-32)$ same sign: Add

16. $3 + 98$ same sign: Add 17. $-120 + (-2)$ same sign: Add 18. $-120 + -6$ same sign: Add

19. $5 + -2$ different sign: Sub. 20. $6 + 3$ same sign: Add 21. $-6 + 6$ different sign: Sub.

22. $3 + (-9)$ different sign: Sub. 23. $-2 + -6$ same sign: Add 24. $3 + -6$ different sign: Sub.

Lesson 2-5

Pages 103-106

Subtract. ***rewrite as addition then solve! (REMEMBER: Add the Opposite!)

1. $3 - 7 \rightarrow 3 + -7 = -4$

2. $-5 - 4 \rightarrow -5 + -4 = -9$

3. $-6 - 2 \rightarrow -6 + -2 = -8$

4. $8 - 13 \rightarrow 8 + -13 = -5$

5. $6 - (-4) \rightarrow 6 + = 10$

6. $12 - 9$

7. $-2 - 23 \rightarrow -2 + -23 = -25$

8. $63 - 78 \rightarrow -63 + -78 = -141$

9. $0 - (-14) \rightarrow 0 + 14 = 14$

10. $15 - 6$

11. $18 - 20 \rightarrow 18 + -20 = -2$

12. $-5 - 8 \rightarrow -5 + -8 = -13$

13. $21 - (-37) \rightarrow 21 + 37 = 58$

14. $-60 - 32 \rightarrow -60 + -32 = -92$

15. $57 - 63 \rightarrow 57 + -63 = -6$

#s 6 and 10 circled as you do not have to rewrite as addition. These are basic subtraction problems that you can solve regularly

Evaluate each expression if $k = -3$, $p = 6$, $n = 1$, and $d = -8$.

16. $55 - k = 58$

17. $p - 7 = -1$

18. $d - 15 = -23$

19. $n - 12 = -11$

20. $-51 - d = -43$

21. $k - 21 = -24$

22. $n - k = 4$

23. $-99 - k = -96$

24. $p - k = 9$

25. $d - (-1) = -7$

26. $k - d = 5$

27. $n - d = 9$

***substitute and rewrite as addition then solve! (Add the Opposite!)

16. $55 - (-3)$

$55 + 3 = 58$

17. $6 - 7$

$6 + (-7) = -1$

18. $-8 - 15$

$-8 + -15 = -23$

19. $1 - 12$

$1 + -12 = -11$

20. $-51 - (-8)$

$-51 + 8 = -43$

21. $-3 - 21$

$-3 + -21 = -24$

22. $1 - (-3)$

$1 + 3 = 4$

23. $-99 - (-3)$

$-99 + 3 = -96$

24. $6 - (-3)$

$6 + 3 = 9$

25. $-8 - (-1)$

$-8 + 1 = -7$

26. $-3 - (-8)$

$-3 + 8 = 5$

27. $1 - (-8)$

$1 + 8 = 9$

Translation Activity

Problem	Answer	Zero Pair Model	Number Line	Scenario
$-6 + 10$	4			Our team was behind by 6 points then scored 10. We are now winning by 4 points.
$3 + (-7)$	-4			I had three dollars but wanted to spend 7 at McDonalds. I need 4 more dollars.
$7 + (-17)$	-10			Jill dove from a platform 7 feet above water into a pool. Her dive took her 10 ft below water.
$2 + (-5)$	-3			A football team gained 2 yards but then was pushed back 5. They are 3 yards back from where they started.
$-25 + 16$				Max owed a friend \$25. He paid him back 16 of it.

WHAT IS NOT COMPLETED ON THIS SHEET IS THE STUDENTS OWN RESPONSIBILITY TO COMPLETE AS INDEPENDENT PRACTICE

SLIDE 1

Rational Numbers

Digits Unit B - Topic 4

Absolute Value, Opposites, and Additive Inverse
 Adding and Subtracting Rational Numbers
 Distance on a Number Line

SLIDE 2

Important Vocabulary

- | | |
|--------------------------------|-----------------------|
| Absolute Value | Associative Property |
| Zero Pair | Distributive Property |
| Additive Inverse | Identity Property |
| Opposites | Commutative Property |
| Parts of the Number System (4) | Inverse Property |

SLIDE 3

Absolute Value: Practice/Self Check

With a table partner, complete the following

Complete each statement with the symbol that correctly compares the absolute values.



$\frac{ -5 }{5}$	$>$	$\frac{ 3 }{3}$
$\frac{ -7.6 }{7.6}$	$>$	$\frac{ 6 }{6}$
$\frac{ -1 }{1}$	$<$	$\frac{ -3 }{3}$

$|- \frac{1}{2}| > | - \frac{1}{4}|$

$|3.1| = |-3.1|$

$|4 \frac{1}{2}| = | - \frac{9}{2}|$

$2 \sqrt{\frac{4}{9}} = 4 \frac{1}{2}$

SLIDE 4

Opposites: Practice/Self Check

With a table partner, complete the following

Situations and Their Opposites

	Words	Number
Situation	You climbed up 7 stairs.	7
Opposite	You climbed down 7 stairs	-7
Situation	Your car used 9.2 gallons of gas.	-9.2
Opposite	You filled your car up w/ 9.2 gallons	9.2
Situation	A submarine descends $\frac{3}{8}$ mi.	$-\frac{3}{8}$
Opposite	A submarine ascends $\frac{3}{8}$ mi	$\frac{3}{8}$

SLIDE 5

Additive Inverse: Practice/Self Check

With a table partner, complete the following.

Additive - see adding Inverse - think opposites
Additive Inverse -- Adding Opposites to equal 0.

Additive Inverses

Two numbers that have a sum of 0.

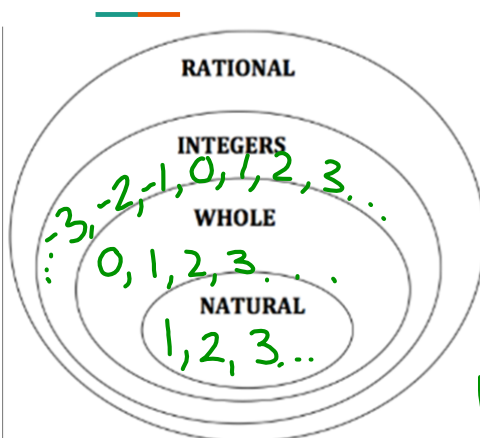
Example
7 and -7 are additive inverses.

$5 + (-5)$	$-8 + 8$	$-5 + 5$	$8 + (-8)$
$-5 + (-5)$	$-12 + (-12)$	$8 + 8$	$12 + (-12)$

Additive Inverses

$5 + (-5)$ $-8 + 8$ $-5 + 5$ $8 + (-8)$
 $12 + (-12)$

SLIDE 6 The Number System



Natural Numbers:

Start at 1

Whole Numbers:

Starts at 0

Integers:

Whole Numbers & their opposites

Rational Numbers:

Integers, fractions & decimals

Digits 4.2: Adding Integers

SLIDE 7

Remember the rules we discussed on page 33 of our interactive notebook.

- Same Sign -- if both numbers have the same sign, Add the numbers and keep the sign.
- Different Sign -- if one number is a positive and the other is a negative, Subtract the Small from the Big number and keep the sign of the number with the Largest absolute value.
- Zero Pair is when we use symbols to model a scenario. One positive and one negative make a pair that equal zero. This is an example of Opposites or Additive Inverse.

Focus Question

What does it mean to add less than nothing to something?

Your Response:

ON YOUR OWN!

SLIDE 8

Adding Integers: Self Check **ON YOUR OWN!**

Complete the following on your own. You CAN do it!!

Do you know HOW?

1. Complete the statement. Then find the sum.

$-8 + 5$ is units from -8 in the

direction.

$-8 + 5 =$

2. Is the value of the expression $75 + (-75)$ less than zero, equal to zero, or greater than zero?

3. Write and simplify an addition expression for the model.



4. Model number 1 on a number line as well as with zero pair. Then write a real world scenario that models the algebraic expression.

Digits 4.3: Adding Rational Numbers

SLIDE 9

To add rational numbers we follow the the same rules we learned to add integers.

Same Sign: Add
 Different: Subtract
 Keep the sign of the number with the: Greatest Absolute Value.

Focus Question

How is adding rational numbers different than adding whole numbers?

Your Response:

ON YOUR OWN!

SLIDE 10

Adding Rational Numbers Practice

Rules to Remember:

Fractions: Need to have Common Denominators in order to add

Decimals: Line Up the decimal place when adding. Use a 0 as a placeholder if there are not the same amount of decimal place values in each number.

$$-\frac{3}{4} + \left(-\frac{9}{4}\right)$$

$$\frac{-3 + (-9)}{4} = \frac{-12}{4} = -3$$

$$5.1 + (-8.3)$$

$$\begin{array}{r} 8.3 \\ -5.1 \\ \hline 3.2 \end{array}$$

*** To find common denominators find the least common multiple between the two factors when not already the same.

Example: $\frac{3}{4} + \frac{7}{10}$

20 is the LCM

Multiples of 4: 4, 8, 12, 16, 20, 24, 28,

Multiples of 10: 10, 20, 30, 40, 50,

Next make equivalent fractions by multiplying the numerator and denominator

by the same factor $\frac{3}{4} \times 5 = \frac{15}{20}$ and $\frac{7}{10} \times 2 = \frac{14}{20}$

New Addition Problem is $\frac{15}{20} + \frac{14}{20}$

$\frac{39}{20}$

$1 \frac{19}{20}$

**add numerators

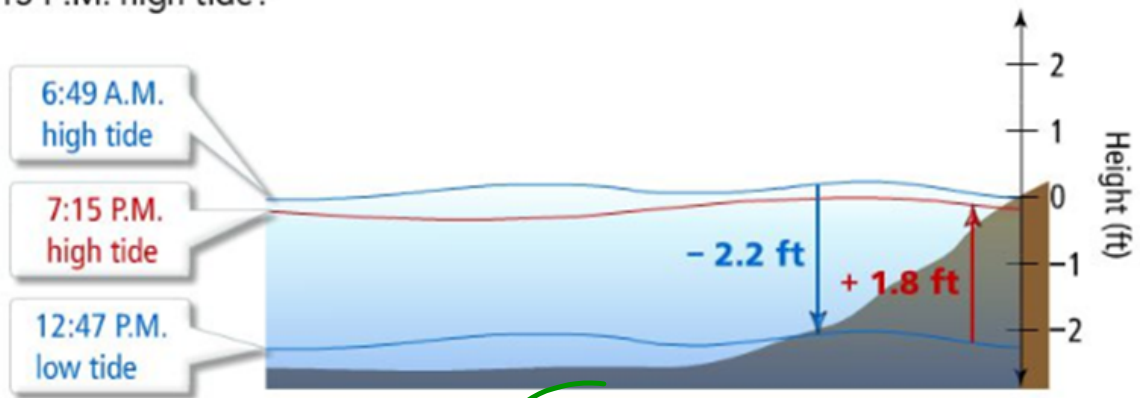
Keep the denominators

SLIDE 11

Adding Rational Numbers

Real World Application - Answer the question then find the sum.

The diagram shows the changes in the water level after the 6:49 A.M. high tide. Which expression represents the water level, in feet, at the 7:15 P.M. high tide?



- A. $2.2 + 1.8$ B. $2.2 + (-1.8)$ C. $-2.2 + 1.8$ D. $-2.2 + (-1.8)$

C

0.4

$$\begin{array}{r} 2.2 \\ -1.8 \\ \hline 0.4 \end{array}$$

SLIDE 12

Adding Rational Numbers: Self Check

ON YOUR OWN!

Complete the three practice problems below. Show ALL steps/work used.

What is the sum of $-\frac{7}{10} + \frac{1}{4}$?

A homeowner owes the electric company \$72.45. She pays \$57.50. Write and simplify an expression to model this situation.

What is the sum of $-4\frac{5}{6} + (-2\frac{5}{9})$?

SLIDE 13

Digits 4.4: Subtracting Integers

Refer to the notes and examples that we took on page 34 of your INB

To subtract an integer, add its opposite.

Add the Opposite

The first number Stays the same

Then turn the subtraction to Addition

Find the Opposite of the number directly following the operation

Arithmetic

$$5 - 7 = 5 + (-7)$$

$$5 - (-7) = 5 + 7$$

Algebra

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

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

Focus Question

What does it mean to subtract less than nothing from something?

Your Response:

ON YOUR OWN!

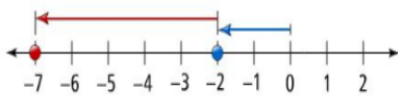
SLIDE 14

Operation Equivalency

Every subtraction problem has an equivalent addition problem.

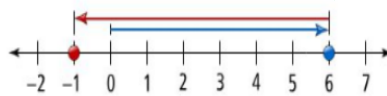
We can rewrite subtraction as addition using the "add the opposite" strategy!

Write equivalent subtraction and addition expressions for each number line model.



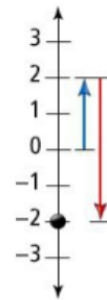
$$-2 - 5 = -7$$

$$-2 + -5 = -7$$



$$6 - 7 = -1$$

$$6 + -7 = -1$$



$$2 - 4 = -2$$

$$2 + -4 = -2$$

SLIDE 15

Subtracting Integers Practice

Hint: use the "Add the Opposite" strategy to help you solve each problem.

What is the value of each expression?

7 3 -1 -7 1 -3

$$-4 - (-3) = -1$$

$$-4 + 3$$

$$1 - (-6) = 7$$

$$1 + 6$$

$$-5 - (-2) = -3$$

$$-5 + 2$$

$$6 - (-1) = 7$$

$$6 + 1$$

$$-3 - (-4) = 1$$

$$-3 + 4$$

$$-2 - (-5) = 3$$

$$-2 + 5$$

SLIDE 16

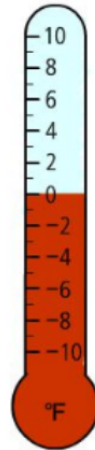
Real World Application

Write a subtraction and addition problem for each problem below. Then find the final answer.

Between 6:00 A.M. and noon, the temperature rose from 0°F to 8°F . By 5:00 P.M., the temperature had dropped by 10°F . By 8:00 P.M., the temperature dropped another 5°F .

$8 + (-10) + (-5) = -7$

The map shows the highest temperature ever recorded in the United States. The lowest temperature ever recorded in the United States was 214°F lower than this temperature.



Write and simplify a subtraction expression to represent the lowest temperature ever recorded in the United States.

$134 - 214$
 $134 + -214 = (-80)$

$$\begin{array}{r} 214 \\ -134 \\ \hline 80 \end{array}$$

SLIDE 17

Think About It!

Which one is not like the other? You must justify (provide reasoning) for your answer.

Which expressions are equivalent to $4 + (-9)$?

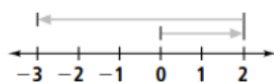
- I. $-9 + 4$ commutative Property
- II. $4 - 9$ $4 + (-9)$
- III. $-9 - (-4)$ "Add the opposite"
 $-9 + 4$

SLIDE 18 Subtracting Integers: Self Check ON YOUR OWN!

Complete the following on your own. You CAN do it!!

Do you know HOW?

- Write equivalent subtraction and addition expressions for the number line model.



- = +

- Write and simplify an equivalent expression.

$-12 - (-8)$

- The highest point in California is Mt. Whitney at 14,494 ft above sea level. The lowest point in the state is Death Valley, which is 14,776 ft lower than Mt. Whitney. Write and simplify a subtraction expression to represent the lowest point in California.

SLIDE 19 Digits 4.5: Subtracting Rational Numbers

You subtract a fraction or a decimal the same way you subtract an integer.

For any rational numbers a and b :

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

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

Write subtraction as adding the opposite. $-\frac{3}{5} - \frac{4}{5} = -\frac{3}{5} + (-\frac{4}{5})$

Write subtraction as adding the opposite. $-9.1 - (-7.6) = -9.1 + 7.6$

Add numbers with the same sign. $= -\frac{7}{5}$

Add numbers with different signs. $= -1.5$

Focus Question

How is subtracting rational numbers different than subtracting whole numbers?

Your Response:

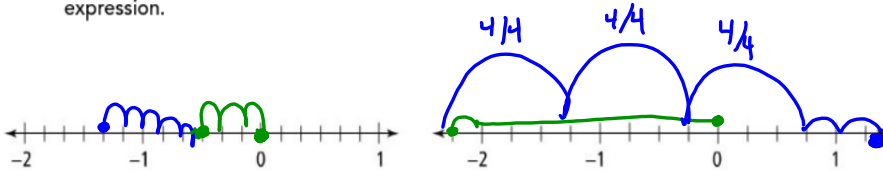
ON YOUR OWN!

SLIDE 20

Rational Numbers on a Number Line

Helpful Hint: Don't forget "Add the Opposite"

Model each subtraction expression on a number line. Find the value of the expression.



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

$$-\frac{3}{6} + \frac{-5}{6} = \frac{-8}{6}$$

$$-2\frac{1}{4} - (-3\frac{1}{2}) = 1\frac{1}{4}$$

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

$$-2\frac{1}{4} + 3\frac{2}{4} = 1\frac{1}{4}$$

SLIDE 21

Real World Application

Write a subtraction problem that can be used to solve each situation below. Then find your final answer.

Carbon dioxide and nitrogen are two gases found in air. Both gases can be used as coolants in solid or liquid form.

Carbon dioxide becomes dry ice at -78.5°C . Nitrogen becomes liquid nitrogen at -195.79°C .

The temperature at which a liquid turns to gas is its boiling point. The temperature at which a liquid turns to a solid is its freezing point.

Liquid nitrogen's boiling point is -195.79°C . Liquid nitrogen's freezing point is -210°C .

Which of these temperatures is higher? How much higher?

$$\text{CO}_2 -78.5^{\circ}\text{C}$$

$$\begin{array}{r} 195.79 \\ - 78.50 \\ \hline 117.29 \end{array}$$

SLIDE 22**Think About It!**

Find the classmate's error and clearly explain why she is incorrect. Then write your own subtraction problem that can be used to solve this problem and find the correct difference.

Error Analysis The record high temperature in the United States is 134°F and the record low temperature is -80°F . A classmate writes an equation to find the difference between the two temperatures. Explain her error and give the correct answer.

$$134 - 80 = 54$$

She did not include the negative with the 80

$$134 - (-80)$$

$$134 + 80 = 214$$

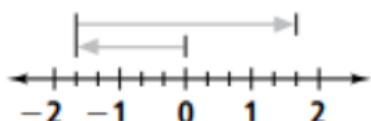
SLIDE 23**Subtracting Rational Numbers: Self Check**

ON YOUR OWN!

Complete the following on your own. You CAN do it!!

Do you know HOW?

- Is $-\frac{5}{9} - (-\frac{7}{9})$ less than zero, equal to zero, or greater than zero?
- Write and simplify a subtraction expression for the number line model.
- The lowest point in the United States is Death Valley with an elevation of -282 ft in relation to sea level. The lowest point on land in the world is the shore of the Dead Sea at $-1,385$ ft. What is the difference between the two elevations?



Digits 4.6: Distance on a Number Line

Things to Remember...

- Distance tells us how far two items are apart from each other.
- To find how far apart two items are from each other you would use Subtraction.
- Keep in mind that absolute value told us distance can never be Negative !
 - It does not matter if I drive to the beach or if I am coming home from the beach. I am still driving the same distance just in opposite directions.

Focus Question

Subtraction is not commutative. In what situations does the order in which you subtract two numbers *not* matter?

Your Response:

ON YOUR OWN!

Finding Distance: Class Example

Write two different absolute value expressions for the distance in kilometers between the nimbostratus cloud and the altostratus cloud. How far apart are the clouds?



$$|4.1 - 1.3|$$

$$|2.8|$$

$$2.8$$

$$\begin{array}{r} 3 \\ 4.1 \\ - 1.3 \\ \hline 2.8 \end{array}$$

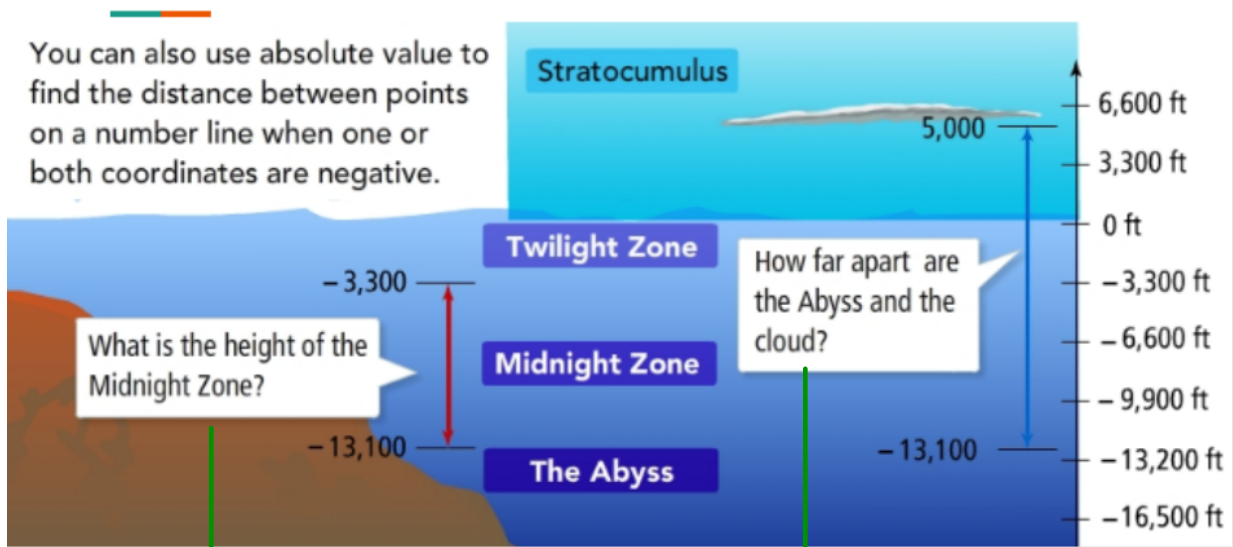
$$|1.3 - 4.1|$$

$$|-2.8|$$

$$2.8$$

When you use absolute value to find the distance between two items it will not matter the order you write your subtraction problem. This is because the answer to an absolute value question is always positive.

Finding Distance: Class Example



What is the height of the Midnight Zone?

$$|-3,300 - (-13,100)|$$

$$|-3,300 + 13,100|$$

$$|9800| = \mathbf{9,800 \text{ feet}}$$

How far apart are the Abyss and the cloud?

$$|5,000 - (-13,100)|$$

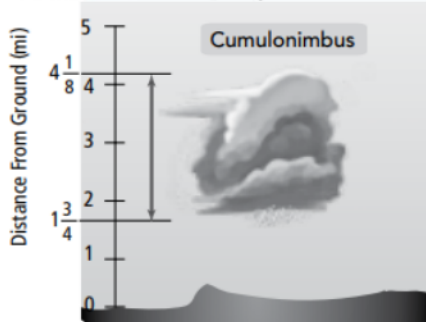
$$|5,000 + 13,100|$$

$$|18,100| = \mathbf{18,100 \text{ feet}}$$

Finding Distance

With a table partner, see if you can solve the following

What is the distance between the top and the bottom of this group of clouds?



$$|4 \frac{1}{8} - 1 \frac{3}{4}|$$

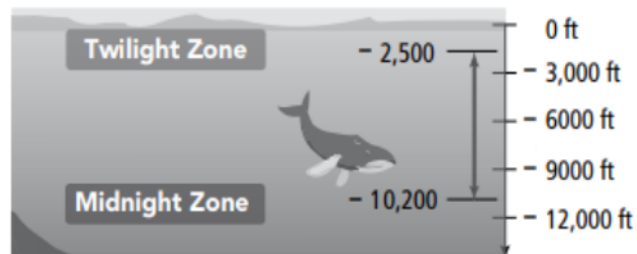
$$|4 \frac{1}{8} - 1 \frac{6}{8}|$$

$$|2 \frac{1}{8}| = \mathbf{2 \frac{1}{8} \text{ feet}}$$

$$3 \cancel{4} \frac{1}{8} \rightarrow \frac{7}{8}$$

$$\begin{array}{r} 1 \\ \hline 2 \frac{1}{8} \end{array}$$

A whale dives from the Twilight Zone into the Midnight Zone. How far does the whale dive?



$$|-10,200 - (-2,500)|$$

$$|-10,200 + 2,500|$$

$$|-7,700| = \mathbf{7,700 \text{ feet}}$$

****diff sign sub.****

$$\begin{array}{r} \overset{9}{\cancel{10}}200 \\ - 2500 \\ \hline 7700 \end{array}$$

Think About It!

Using the formula for distance provided determine which solution is the correct expression to solve for distance in the provided example. You MUST justify your reasoning (explain).

The distance between any two rational numbers a and b on the number line is the absolute value of their difference.

$$\text{distance between } a \text{ and } b = |a - b| = |b - a|$$

Which expression(s) represent the distance between -2 and 4 on the number line?

I. $|4 - 2|$

II. $|-2 + 4|$

III. $|-2 - 4|$

IV. $|4 + 2|$

#1: they used subtraction but forgot the negative for the two

#2: they kept two as negative but added four instead of subtracting

#3: They kept two negative and subtracted four

#4: $4 - (-2)$ is the same as adding $4 + 2$ using our add the opposite rule

Distance on a Number Line: Self Check

ON YOUR OWN!

Complete the following on your own. You CAN do it!!

Do you know HOW?

- | | |
|--|--|
| <p>1. A space shuttle can orbit the earth at 330 mi above sea level. The average commercial airplane can fly at 5.7 mi above sea level. What is the distance between the two aircraft?</p> | <p>3. Write an expression using absolute value to represent the distance between -12 and 12 on the number line.</p> |
| <p>2. The lowest point on Earth is in the Mariana Trench in the Pacific Ocean. It is $-10,924$ m from sea level. The highest point on Earth is Mount Everest in the Himalaya Mountains at $8,850$ m from sea level. What is the distance between the highest and lowest points on Earth?</p> | <p>Error Analysis The Roman Empire lasted from 27 BC to 476 AD. Using 0 as the division between BC and AD, a classmate says he can find the total length of the Roman Empire using the equation $-27 + 476 = x$. Is he correct? Explain.</p> |

Digits 4.7: Problem Solving

Our Goal: To use the skills we learned about in this past chapter to solve real world problems!

I CAN solve real world and mathematical problems involving addition and subtraction of rational numbers!

Skills learned this unit.....

- Absolute Value
- Opposites
- Additive Inverse
- Adding Integers/Rational Numbers
- Subtracting Integers/Rational Numbers
- Finding Distance between two numbers

Problem Solving: Examples 1 and 2

Three friends all live on the same street that runs west to east.

Juan lives $2\frac{1}{2}$ blocks from Amy.

Michele lives $3\frac{3}{4}$ blocks from Juan.

On the number line, show all possible locations for Juan's house and Michele's house on the diagram. Label each point with its coordinate.

Amy's House

One cat weighs $5\frac{1}{4}$ lbs.
Another cat's weight differs by $1\frac{5}{8}$ lbs.
Find the possible weight of the second cat.
Could there be more than one solution?

Problem Solving: Examples 3 and 4

Click to add text

Write an equation that expresses "Variation From Normal" in terms of "Recorded Temperature" and "Normal Temperature." Use your equation to complete the table.

January Temperature Data

	Recorded Temperature (°F)	Normal Temperature (°F)	Variation From Normal (°F)	
High	41	15	26	$41 - 15 = 26$
Low	-35	-4	-31	$-35 - (-4) \rightarrow -35 + 4 = -31$
Average Low	ON YOUR OWN!	-4.4	4.2	$x - (-4.4) = 4.2 \rightarrow x + 4.4 = 4.2$

What is the range of the temperature data set?

Range means to subtract the greatest from the least

Daily Low Temperature (°F), February 1 to February 14

13, 12, 15, 8, -1, -2, 0, 5, 3, -1, 9, 12, 14, 10 15 is the greatest and -1 is the least

$15 - (-1) \rightarrow 15 + 1 = 16$