Name:_____   Date:_____

Comparing and Ordering Integers

1. Negative numbers are numbers that are to the **LEFT** of zero on a number line.

2. Positive numbers are numbers that are to the **RIGHT** of zero on a number line.

3. Numbers **increase** in value from **Left** to **right** on the number line.

4. To compare integers, you can use a **number line** to help you.

5. If both numbers are negative, the number closest to zero is **greater in value**. **-6 < -3** AND **-3 > -6**

6. If one number is positive and the other is negative, the **negative** number is smaller. **-9 < 3** AND **3 > -9**

7. If both numbers are positive, the number closest to zero is **smaller**. **6 < 9 and 9 > 6**
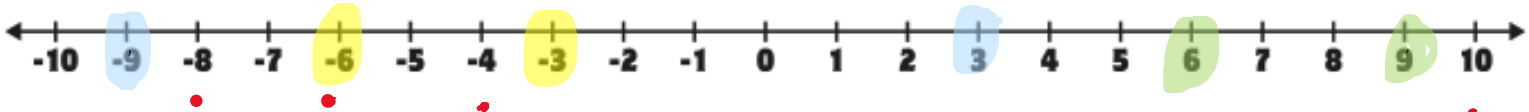
8. Compare each pair of numbers using <, > or =. Use the number line if needed **(LESS THAN POINTS TO THE LEFT)**

   -4 **<** 10   -6 **>** -8   7 **>** -2

   0 **>** -1   12 **>** -20   -200 **>** -350

9. Order from least to greatest: -19, -15, -22, 4, 0

   -22, -19, -15, 0, 4

   owes the most   has the most

10. Order from greatest to least: 23, -45, -13, -10, -55

    23, -10, -13, -45, -55

    HAS the MOST   OWES the MOST

Name:_____   Date:_____

Practice: Comparing and Ordering Integers

#1 Compare the pair of numbers using <, > or = -56 __**>**__ -57	**#2** Compare the pair of numbers using <, > or = -34 __**<**__ -30
#3 Compare the pair of numbers using <, > or = -26 __**>**__ -87	**#4** Compare the pair of numbers using <, > or = -900 __**<**__ -800
#5 Order from least to greatest: 15, -16, -18, 19, -20 **-20, -18, -16, 15, 19**	**#6** Order from least to greatest: -35, -50, 76, -76, 100 **-76, -50, -35, 76, 100**

#8 Mrs. Carroll's class was playing a game where each group started at -500 and earned points to try to get to zero first. Team A had -450 points, Team B had -360 points and Team C had -380 points. Which team came the closest to winning?

TEAM B because -360 is closer to Zero than -450 or -380.

Comparing and Ordering Integers Vocabulary

Definition	Algebraic Example
Putting Integers in order based on their value.	Negative numbers are always less than positive numbers.

Ordering Integers

Put in order from LEAST to GREATEST: $-5, -10, 13, -1$ $-10, -5, -1, 13$ **Examples**	Order from GREATEST to LEAST $-5, -10, 13, -1$ $13, -10, -5, -1$ Non-Examples (incorrect)

Definition	Algebraic Example
Using $>$, $<$, or $=$ to compare integers	$>$ Greater than $<$ less than $=$ equal to

Comparing Integers

$-5 > -7$ $-7 < -5$ $8 > -9$ $-9 < 8$ **Examples**	$-5 > 7$ (FALSE) $-8 > -3$ Non-Examples

Name:_____   Date:_____

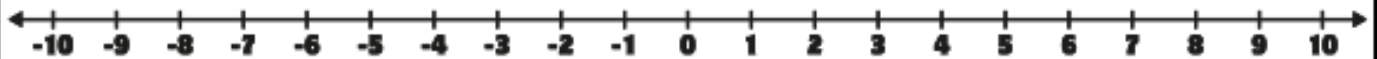# Absolute Value

IMPORTANT VOCABULARY:

- **Opposites:** Numbers that are the same __distance__ from zero on a number line, but in ____opposite____ directions.
- **Absolute Value:** An integer's distance from ____zero____ on the number line.

ABSOLUTE VALUE

1. On the number line below, identify two pairs of opposite numbers.

   ____−4____ and ____4____ are opposites

   ____−6____ and ____6____ are opposites

   ```
   ←+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—→
   -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10
   ```
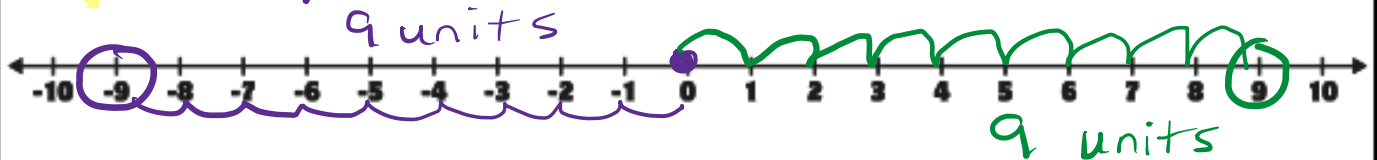
2. You can write "the absolute value of 5" with symbols as _____ $|5|$

3. Find $|-9|$ using the number line below.
   $|-9| =$ __9__   How far is it from zero?
   9 units

   ```
   ←+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—+—→
   -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10
   ```
   9 units

4. Find $|9|$ using the number line above.
   $|9| =$ __9__

5. Opposites have the same __Absolute Value__.

6. Absolute value is always ____positive____ because distance is always positive.

7. Knowing the absolute value of numbers will help you determine which is closest to ____zero____.

Name:_____ Date:_____

Absolute Value

#1 Find the absolute value:

$|-19| = $ **19**

#2 Find the absolute value:

$|2\frac{1}{2}| = $ **$2\frac{1}{2}$**

#3 Find the absolute value:

$|14| = $ **14**

#4 Find the absolute value:

$|-0.34| = $ **0.34**

#5 Find the absolute value:

$|8| = $ **8**

#6 Find the absolute value:

$|-14.5| = $ **14.5**

#7 Find the absolute value:

$|7|$

$|3+4| = $ **7**

#8 Find the absolute value:

$|30|$

$|5\times6| = $ **30**

#9 A seagull flies 50 feet above sea level. A dolphin swims 20 feet below sea level. Which animal is closest to sea level?

The dolphin is closest to sea level.

SEAGULL 50

~~~~~~~~~~ Zero

DOLPHIN -20

#10 Jeremy, Alicia and Edgar are playing a game where the object is to get closest to zero points. If Jeremy has -250 points, Alicia has -150 points and Edgar has 300 points, who is the winner?

WINNER = "closest to zero"

Alicia

▶▶▶▶▶ Absolute Value
VOCABULARY

Opposites

Definition

Numbers that are the same distance from zero on a number line, but in opposite directions.

Facts/Characteristics

Positive and negative versions of a number

Examples

−9 and 9

Non-Examples

(FALSE)

−9 and −8

Absolute Value

Definition

An integer's distance from zero.

Facts/Characteristics

ALWAYS positive because distance is positive.

Examples

$|-4| = 4$

$|7| = 7$

Non-Examples

(FALSE)

$|-4| = -4$

$|5| = -5$

Name _____

Compare and Order Integers on a Number Line

1. Tracy and Maria each choose a card from a deck of cards with positive and negative numbers. Tracy picked −12 and Maria picked −6. Who picked the greater number?

$-6 > -12$ Tracy −12   Maria −6

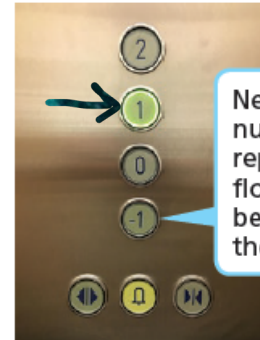**2. STEM** The average temperature on the planet Neptune is −214 °C. The temperature on the south pole of Neptune is thought to be 10 °C. Is this colder or warmer than the average temperature? Write an inequality to support your answer.

$$10 > -214$$
Warmer

3. An office building uses positive numbers and negative numbers for floors as shown. Nathan is going to floor 1, and Eva is going to floor −1. Who is going to the higher floor?
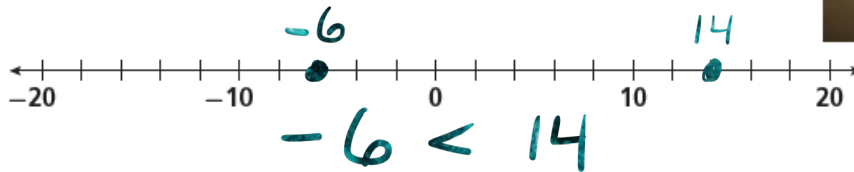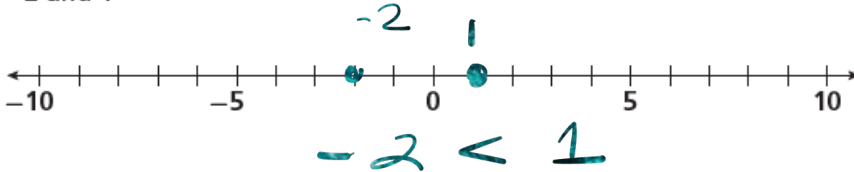
Nathan because $1 > -1$

Negative numbers represent floors below the lobby

For Problems 4–5, graph the numbers on the number line. Then write an inequality to compare the numbers.
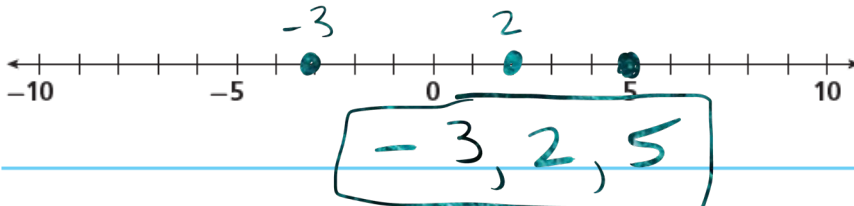
4. 14 and −6

$$-6 < 14$$

5. −2 and 1

$$-2 < 1$$

6. Math on the Spot Graph the numbers. Then write the numbers in order from least to greatest.

5, −3, 2

$$-3, 2, 5$$

Name:_____   Date:_____

Absolute Value Assessment
Select the correct answer for each question.

1. Fill in the missing value:
$$|\star| = 19$$
   a) -9
   b) 1
   c) 19
   d) 91

2. Fill in the missing value:
$$|-23| = \star$$
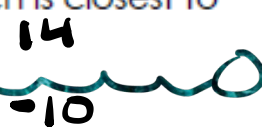   a) -23
   b) -20
   c) 20
   d) 23

3. What is the absolute value of -22?
   a) -22
   b) 20
   c) 22
   d) 220

   How far is it from zero?

4. A bird is flying 14 feet above sea level. A fish is swimming 10 feet below sea level. Which is closest to sea level?
   a) The fish
   b) The bird
   c) They are the same distance

   zero *14* *-10*

5. Compare using <, > or =
$$|-54| \_\_\_\_ |55|$$
   a) >
   b) <
   c) =

   54 < 55
   Simplify Absolute Value, THEN compare.

6. Select each number that has an absolute value that is greater than 16.
   a) -17
   b) 16
   c) -90
   d) -8
   e) 19

   Farther away from zero than 16.

Answer the question below. Be sure to show all of your work.

7. Illustrate on the number line below why -8 and 8 have the same absolute values. Name two other pairs of number that have the same absolute value.

8 UNITS   *8 UNITS*

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 1 2 3 4 5 6 7 8 9 10

Absolute Value = Distance from Zero

-4 and 4
-10 and 10