

Content and Language Objective:

Students will evaluate a variety of situations using absolute value expressions and addition and subtraction operations using real numbers and be able to explain in their own words what the absolute value operation is.

Warm-Up

1. Thinking back to earlier this month, be prepared to discuss the types of categories used when classifying numbers and one example of each.

5: Rational, whole, natural, integer

4.5: Rational: $2\frac{2}{5}$, .05, $\sqrt{4}$

irrational: π , $3.9824715\frac{1}{6}$, $\sqrt{2}$

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Terms:

- **Real Number Line**
- **Origin**
- **Less/Greater Than**
- **Positive/Negative Number**
- **Absolute Value**
- **Addends/Sum**
- **Additive Inverse**

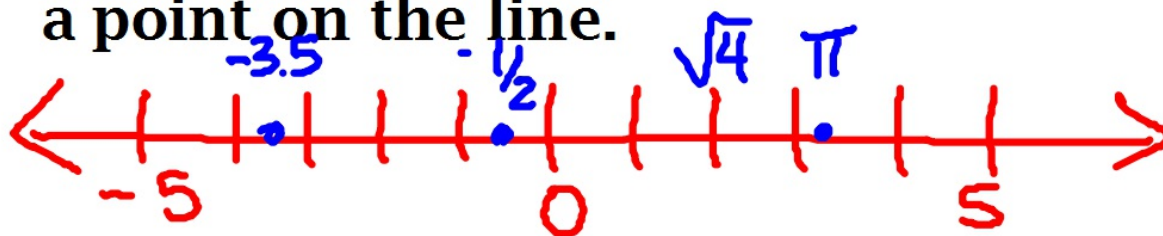
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Terms:

- **Real Number Line**

A visual representation of the real number system where each real number corresponds to a point on the line.



- **Origin**

The point associated with the real number 0

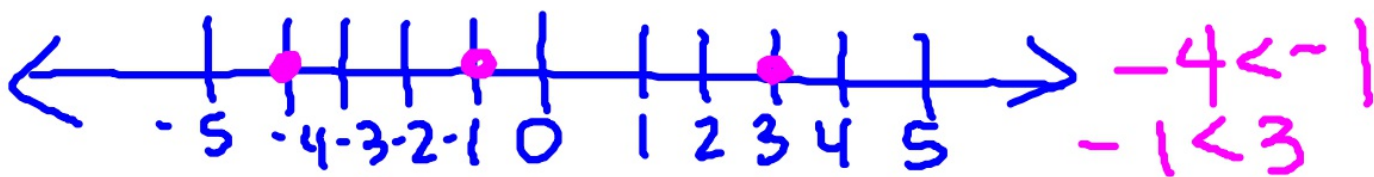
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Terms:

- **Less Than**

If a real number a is located to the left of another real number b , then $a < b$.



- **Greater Than**

If a real number a is located to the right of another real number b , then $a > b$.



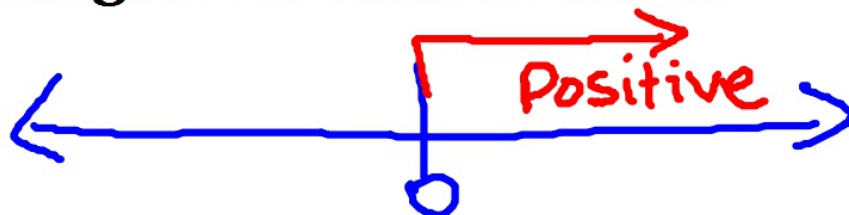
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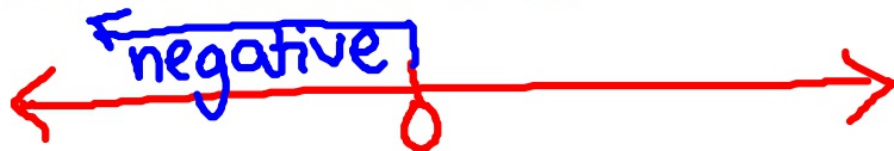
- **Positive Numbers**

A real number that is located to the right of 0 and greater than 0. $a > 0$



- **Negative Numbers**

A real number that is located to the left of 0 and is less than 0. $a < 0$



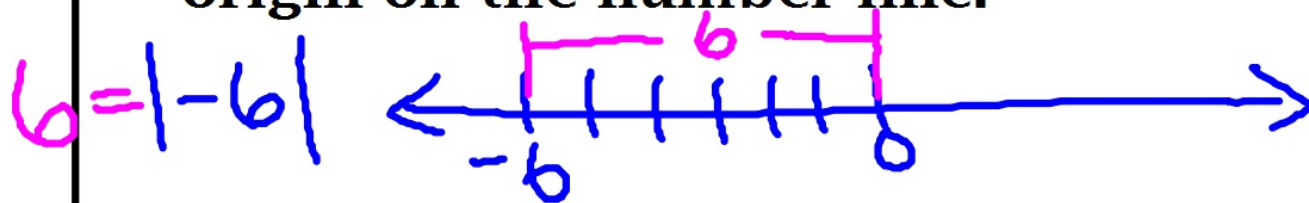
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Terms:

- **Absolute Value**

Written as $|a|$, is equal to the distance from the origin on the number line.



Evaluate each expression.

1. $|9.12| = 9.12$

2. $|- \frac{3}{4}| = \frac{3}{4}$

3. $|- \pi| = \pi$

4. $|- 7| = 7$

5. $|- 10| - |- 8| = 2$
 $10 - 8$

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Terms:

- **Addend**

Two numbers added together in an addition problem. The answer is the **sum**.

$$7 + 2 = 9$$

The diagram shows the equation $7 + 2 = 9$ written in pink. A blue bracket is drawn under the numbers 7 and 2, with the word "addend" written in blue below it. A red arrow points from the word "sum" (written in red) to the number 9.

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Terms:

- **Additive Inverse (Opposite)**

The additive inverse is the opposite of the addend.

Example:

The additive inverse of 5 is -5.

The additive inverse of -1.5 is -(-1.5) or 1.5.

When you add the addend and additive inverse the solution will be 0.

$$a + (-a) = 0 \quad 5 + (-5) = 0$$

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Practice: What are the additive inverses of the following?

1. 10,961 $-10,961$

2. $6x - 2$ $-6x + 2$
 $-(6x - 2)$ →

3. π $-\pi$

4. $-\frac{3}{4}$ $\frac{3}{4}$

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Practice: Evaluate the expressions.

1. $-3 + (-5)$ -8

2. $-4 + 7$ 3

3. $8.4 + (-9.5)$ -1.1

