Introduction to Integers

**Positive Number** - a number greater than zero.

**Negative Number** - a number less than zero.

![Number Line Diagram](image)

**Opposite Numbers** - numbers that are the same distance from zero in the opposite direction.

![Opposite Numbers Diagram](image)

**Integers** - Integers are all the whole numbers and all of their opposites on the number line including zero.

- Example #1: 0, 1, 2, 3, 4 ...
- Example #2: 0, -1, -2, -3, -4 ...

**Rational Numbers** - Numbers that can be expressed as one integer divided by another non-zero integer. EVERY integer is rational number.

- Examples: \( \frac{3}{4}, \frac{-7}{8}, \frac{3}{-1}, \) and 0.75
**Absolute Value** – A number’s distance from 0 on a number line.

$$|-3| = 3$$

$$|0| = 0$$

$$|5| = 5$$

**Same and/or Opposite Sides of Zero**

- If two numbers have the **SAME SIGN**, they are on the **SAME SIDE** of zero.
- If two numbers have the opposite signs, they are on the opposite sides of zero.
- Examples:

<table>
<thead>
<tr>
<th>-3 and -4.5</th>
<th>-6 and 2</th>
<th>$\frac{2}{3}$ and 1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same side</td>
<td>Opposite Side</td>
<td>Same side</td>
</tr>
</tbody>
</table>

**Negative Numbers in Real Life**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Negative</th>
<th>What is Zero?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1° C</td>
<td><strong>ZERO</strong>: In this case, zero represents freezing point you are standing at the surface of the ocean.</td>
</tr>
<tr>
<td></td>
<td>-282 ft</td>
<td><strong>ZERO</strong>: In this case, zero represents that you are standing at the surface of the ocean.</td>
</tr>
<tr>
<td></td>
<td>-3 Floor</td>
<td><strong>ZERO</strong>: In this case, zero represents that you are standing at the surface of the ocean.</td>
</tr>
</tbody>
</table>