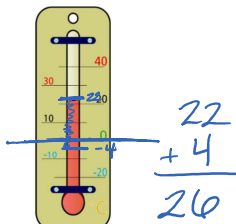


**Lesson 2-1: Understand Integers**

I can...use positive and negative integers.

**Explain it!**

Sal recorded the outdoor temperature as  $-4^{\circ}\text{F}$  at 7:30 AM. At noon, it was  $22^{\circ}\text{F}$ . Sal said the temperature changed by  $18^{\circ}\text{F}$  because  $22 - 4 = 18$ .



A.) Is Sal right or wrong? Explain.

wrong,  $4^{\circ}$  not  $-4^{\circ}$

B.) What was the total temperature change from 7:30 AM until noon? Use the thermometer to help justify your solution.

$26^{\circ}$

C.)  $0^{\circ}\text{C}$  is the temperature at which water freezes. Which is colder,  $10^{\circ}\text{C}$  or  $-10^{\circ}\text{C}$ ? Explain.

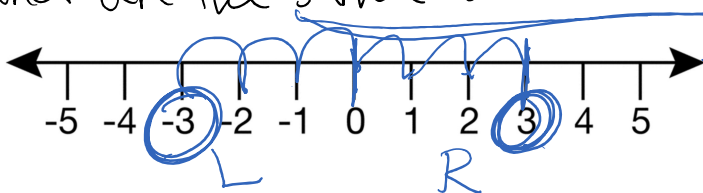
$-10^{\circ}\text{C}$   
below zero.

**Example 1:** Define integers and opposites

**Vocabulary:**

Integers: Positive + Negative whole #  
The counting numbers, their opposites and 0.

Opposites: Numbers that are located on opposite sides of zero and are the same distance from 0 on a number line.



-5 -4 (-3) -2 -1 0 1 2 (3) 4 5

Negative numbers

Positive numbers

What integer is the opposite of 6?

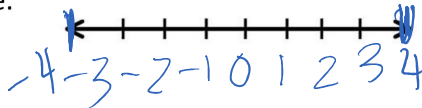
-6

What is the opposite of -6?

6

Try it!

Label the integers on the number line.



The opposite of 4 is -4.

The opposite of -4 is 4.

Convince me! How do you know that two numbers are opposites?

Same distance from zero on opposite sides of zero.

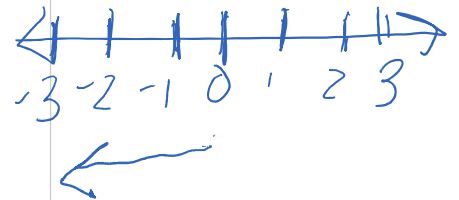


Example 2: Compare and order integers

Riley recorded the temperature for five days in January. Which day was the coldest day of Riley's data? Which was the warmest day? Write the temperatures from least to greatest.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Temp	-5°F	-2°F	4°F	-3°F	1°F

Coldest  $-5, -3, -2, 1, 4$  warmest



Try it!

Which number is greater, -4 or -2? Explain.  $<, >, =$

$-4 < -2$   
closer to zero!

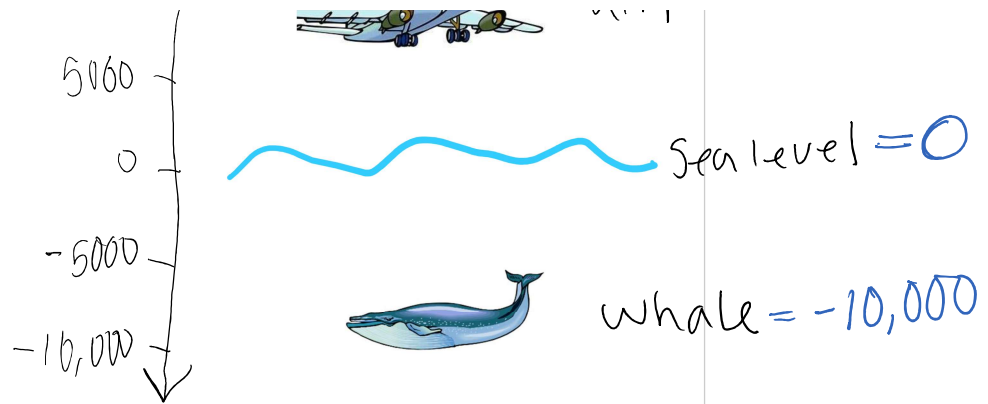
Example 3: Use Integers to Represent Quantities

Integers describe many real-world situations including altitude, elevation, depth, temperature, and electrical charges. Zero represents a specific value in each situation. Which integer represents sea level? The airplane? The whale?

10,000 ↑  
5000 ↓



airplane = 10,000



**Try it!**

Pos. Neg whole #s

Which integer represents each situation?

a.) A \$10 debt  $-10$

b.) Six degrees below zero  $-6$

c.) Deposit of \$25  $25$

**Do you understand?**

1.) What are integers and how are they used to represent real-world quantities?

the counting #, opposites + zero.  
Positive + neg. whole #s + zero.

money, temp. alt., coding

2.) What do you know about two different integers that are opposites? Same distance from zero, opposite sides of zero.

3.) Which amount represents a debt of two hundred fifty dollars, \$250 or -\$250

$-250$

# 21, 23, 26, 30, 32, 33, 36, 39, 41, 42