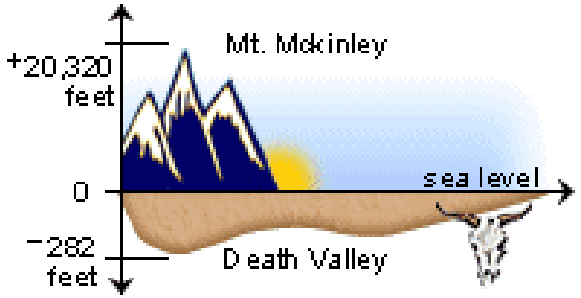
11.1
Integers and Absolute Value

What's an Integer?

Positive and negative whole numbers without any decimals or fractions.

Where have you seen integers in real life?

Using Integers



Elevation	Integer
20,320 feet above sea level	+20,320
sea level	0
282 feet below sea level	-282

Using Integers

Write a positive or negative integer that represents the situation.

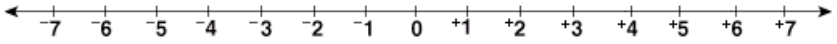
1) 10 degrees above zero

2) a loss of 16 dollars

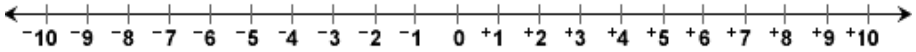
3) a gain of 5 points

4) 8 steps backward

The Number Line



Comparing and ordering



1) $-5 \_\_\_ 3$

2) $-4 \_\_\_ -6$

3) $0 \_\_\_ -2$

4) $-9 \_\_\_ -1$

Order the following from least to greatest:

-2, 4, 3, 0, -4

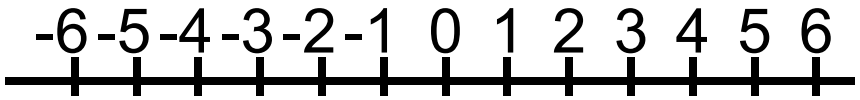
Real-Life Application

You deliver flowers to an office building. You enter at ground level and go down 2 floors to make the first delivery. Then you go up 7 floors to make the second delivery.

a. Write an integer that represents each position.

b. Write an integer that represents how you return to ground level.

Absolute Value



The absolute value is the distance an integer is from zero.

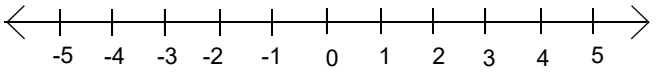
|-3|= **$|-\frac{2}{3}|$=**

|7.5|= **|-4.3|=**

Absolute Value:

This is the _____ between the _____ and _____, on a _____ _____.

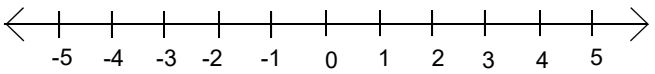
The absolute value of a number *a* is written as _____.



|-4|= **|4|=**

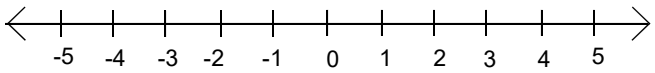
Example:

1) Find the absolute value of 2



|2|=

2) Find the absolute value of -3.



|-3|=

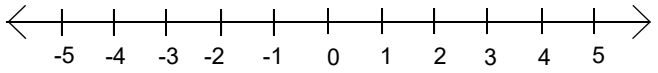
Practice:

Find the absolute value.

3) |7|= 4) |-1|=

5) |-5|= 6) |14|=

Compare the following using <,>, or =.



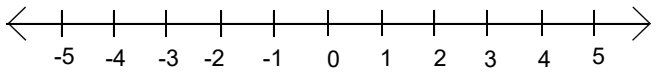
1___|-4|

Complete the statement using <,>, or =.

8) |2|___-1 **9) -7___|6|**

10) |10|___11 **11) 9___|-9|**

Order the values from least to greatest.



8, |3|, -5, |-2|, -2

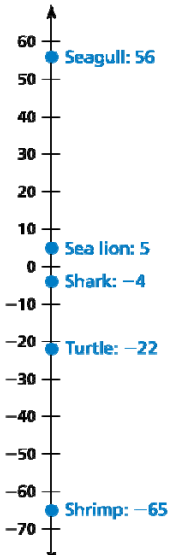
Real-Life Application

Animal	Elevation (ft)
Shark	−4
Sea lion	5
Seagull	56
Shrimp	−65
Turtle	−22

The table shows the elevations of several animals.

a. Which animal is the deepest? Explain.

b. Is the shark or the sea lion closer to sea level?



Real-Life Application

Substance	Freezing Point (°C)
Butter	35
Airplane fuel	−53
Honey	−3
Mercury	−39
Candle wax	55

The *freezing point* is the temperature at which a liquid becomes a solid.

a. **Which substance in the table has the lowest freezing point?**

b. **Is the freezing point of mercury or butter closer to the freezing point of water, 0°C?**