

Name _____

Date _____

1. Mr. Kindle invested some money in the stock market. He tracks his gains and losses using a computer program. Mr. Kindle receives a daily email that updates him on all his transactions from the previous day. This morning, his email read as follows:

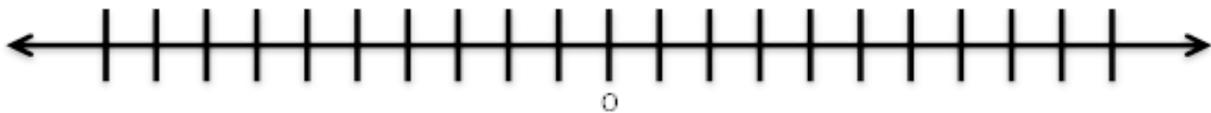
Good morning, Mr. Kindle,

Yesterday's investment activity included a loss of \$800, a gain of \$960, and another gain of \$230. Log in now to see your current balance.

- a. Write an integer to represent each gain and loss.

Description	Integer Representation
Loss of \$800	
Gain of \$960	
Gain of \$230	

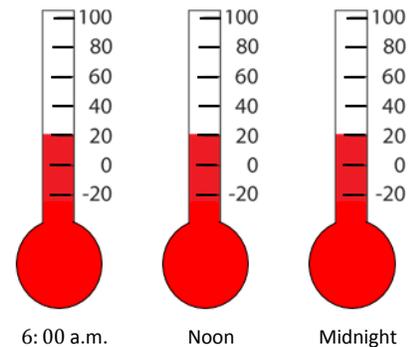
- b. Mr. Kindle noticed that an error had been made on his account. The “loss of \$800” should have been a “gain of \$800.” Locate and label both points that represent “a loss of \$800” and “a gain of \$800” on the number line below. Describe the relationship of these two numbers when zero represents no change (gain or loss).



- c. Mr. Kindle wanted to correct the error, so he entered $-(-\$800)$ into the program. He made a note that read, "The opposite of the opposite of \$800 is \$800." Is his reasoning correct? Explain.

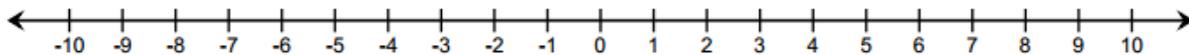
2. At 6:00 a.m., Buffalo, NY had a temperature of 10°F . At noon, the temperature was -10°F , and at midnight it was -20°F .

- a. Write a statement comparing -10°F and -20°F .



- b. Write an inequality statement that shows the relationship between the three recorded temperatures. Which temperature is the warmest?

- c. Explain how to use absolute value to find the number of degrees below zero the temperature was at noon.
- d. In Peekskill, NY, the temperature at 6:00 a.m. was -12°F . At noon, the temperature was the exact opposite of Buffalo's temperature at 6:00 a.m. At midnight, a meteorologist recorded the temperature as -6°F in Peekskill. He concluded that, "For temperatures below zero, as the temperature increases, the absolute value of the temperature decreases." Is his conclusion valid? Explain and use a vertical number line to support your answer.
3. Choose an integer between 0 and -5 on a number line, and label the point P . Locate and label each of the following points and their values on the number line.



- a. Label point A : the opposite of P .
- b. Label point B : a number less than P .
- c. Label point C : a number greater than P .
- d. Label point D : a number half way between P and the integer to the right of P .

4. Julia is learning about elevation in math class. She decided to research some facts about New York State to better understand the concept. Here are some facts that she found.

- *Mount Marcy is the highest point in New York State. It is 5,343 feet above sea level.*
- *Lake Erie is 210 feet below sea level.*
- *The elevation of Niagara Falls, NY is 614 feet above sea level.*
- *The lobby of the Empire State Building is 50 feet above sea level.*
- *New York State borders the Atlantic Coast, which is at sea level.*
- *The lowest point of Cayuga Lake is 435 feet below sea level.*

a. Write an integer that represents each location in relationship to sea level.

Mount Marcy	_____
Lake Erie	_____
Niagara Falls, NY	_____
Empire State Building	_____
Atlantic Coast	_____
Cayuga Lake	_____

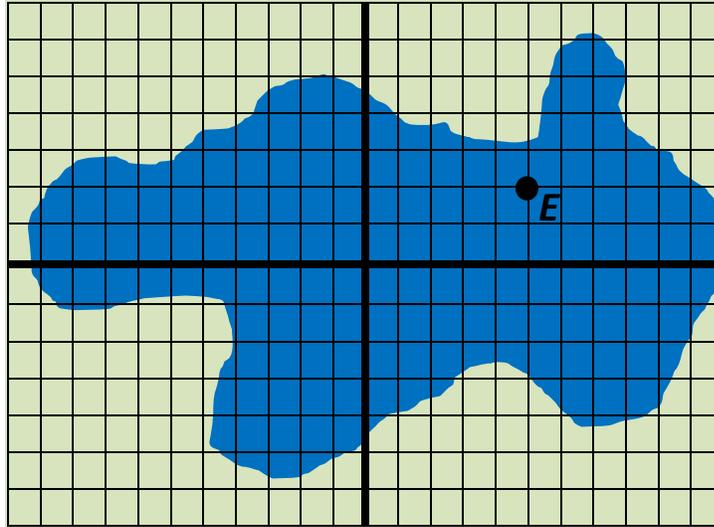
b. Explain what negative and positive numbers tell Julia about elevation.

- c. Order the elevations from least to greatest, and then state their absolute values. Use the chart below to record your work.

Elevations	Absolute Values of Elevations

- d. Circle the row in the table that represents sea level. Describe how the order of the elevations below sea level compares to the order of their absolute values. Describe how the order of the elevations above sea level compares to the order of their absolute values.

5. For centuries, a mysterious sea serpent has been rumored to live at the bottom of Mysterious Lake. A team of historians used a computer program to plot the last five positions of the sightings.



- Locate and label the locations of the last four sightings: $A\left(-9\frac{1}{2}, 0\right)$, $B(-3, -4.75)$, $C(9, 2)$, and $D(8, -2.5)$.
- Over time, most of the sightings occurred in Quadrant III. Write the coordinates of a point that lies in Quadrant III.
- What is the distance between point A and the point $\left(9\frac{1}{2}, 0\right)$? Show your work to support your answer.
- What are the coordinates of point E on the coordinate plane?
- Point F is related to point E . Its x -coordinate is the same as point E 's, but its y -coordinate is the opposite of point E 's. Locate and label point F . What are the coordinates? How far apart are points E and F ? Explain how you arrived at your answer.