Lesson 1: Positive and Negative Numbers on the Number Line—Opposite Direction and Value

Problem Set

1. Draw a number line, and create a scale for the number line in order to plot the points ,, and .
   1. Graph each point and its opposite on the number line.
   2. Explain how you found the opposite of each point.
2. Carlos uses a vertical number line to graph the points and . He notices that is closer to zero than . He is not sure about his diagram. Use what you know about a vertical number line to determine if Carlos made a mistake or not. Support your explanation with a number line diagram.
3. Create a scale in order to graph the numbers through on a number line. What does each tick mark represent?
4. Choose an integer between and Label it on the number line created in Problem 3, and complete the following tasks.
   1. What is the opposite of ? Label it .
   2. State a positive integer greater than . Label it .
   3. State a negative integer greater than . Label it *.*
   4. State a negative integer less than *.* Label it *.*
   5. State an integer between and Label it .
5. Will the opposite of a positive number always, sometimes, or never be a positive number? Explain your reasoning.
6. Will the opposite of zero always, sometimes, or never be zero? Explain your reasoning.
7. Will the opposite of a number always, sometimes, or never be greater than the number itself? Explain your reasoning. Provide an example to support your reasoning.