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 $-2$,$ 4$, and $6$.
	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 $-4,$ $ -2,$ $ 3,$ and $4$. He notices that $-4$ is closer to zero than $-2$. 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 $-12$ through $12$ on a number line. What does each tick mark represent?
4. Choose an integer between $-5$ and $-10.$ Label it $R$ on the number line created in Problem 3, and complete the following tasks.
	1. What is the opposite of $R$? Label it $Q$.
	2. State a positive integer greater than $Q$. Label it $T$.
	3. State a negative integer greater than $R$. Label it$S$*.*
	4. State a negative integer less than $R$*.* Label it$U$*.*
	5. State an integer between $R$ and $Q.$ Label it $V$.
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.