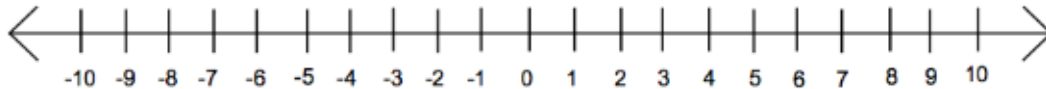


1. Last year in geometry you thought about distance in a plane. For now, let's think about distance in one dimension along a number line. One way to find distance in one dimension is to just count the units, but that would get tedious when they are far away. Find another way to find the distance between -8 and 5 along a number line.



2. What is the distance from 6 to -6? Between 24 and 17? Between 17 and 24? Between x and 4? The distance between two points is always positive. If a and b are two points on a number line the distance is therefore $a - b$ or $b - a$, whichever is nonnegative. This is an example of an absolute value calculation, and the result is written $|a - b|$. What is the meaning of $|b - a|$?
3. In your own words, write a definition of $|-3 - 29|$ or in words “the absolute value of -3 minus 29”. What do you think $|-34|$ represents geometrically?
4. Rearrange the eight words “between”, “4”, “the”, “17”, “is”, “and”, “ x ”, and “distance” to form a sentence that is equivalent to the equation $|x - 17| = 4$. By working with a number line, find the values of x that fit the equation.
5. Translate the sentence “the distance between x and 12 is 20” into an equation using algebraic symbols. What are the values of x being described?
6. Translate “ x is 12 units from 20” into an equation. What are the values of x being described?