

Absolute Value

The absolute value of a number describes its magnitude, or the distance a number is from zero when placed on a number line. The symbol for absolute value resembles parallel vertical line segments.

Consider the numbers negative 50 and five. If we are discussing the value of a number, five has a greater value than negative 50 because it is positive. If we consider the magnitude of a number, or the distance a number is from zero, negative 50 has a magnitude of 50, which is greater than the magnitude of five. So we would say the absolute value of negative 50 is 50, and the absolute value of five is five. If we are being asked to determine the absolute value of a number or an expression, the number or expression will be written inside the absolute value bars.

Consider this in terms of money. If I owe \$50 and have \$5 in my pocket, I can compare the amount of my debt to the amount of money I have. The debt of \$50 is indicated by the 50 red dollar signs. The \$5 cash I have in my pocket is represented by the black dollar signs. If we just think about this in terms of magnitude, or absolute value, the size of the number without regards to a positive or negative value, then the magnitude, or size, of negative 50 is 50, and the magnitude, or size, of five is five. We can think about this another way.

As we consider magnitude and absolute value, we can think about each of these values as a distance from zero. We can place our 50 red dollar signs in a row along the number line to the left of zero to indicate that it is negative 50, and then place our five black dollar signs in a row along the number line to the right of zero to indicate that it is a positive five. When we consider the absolute value of the number, we are considering how far the number is from zero. Distance is expressed as a positive value, so we would say negative 50 has an absolute value of 50 because it is 50 units away from zero, and five has an absolute value of five because it is five units away from zero.

If we are being asked to determine the absolute value of a number or an expression, the number or expression will be written inside the absolute value bars.

Let's try a few. Determine the absolute value of each expression, and then order the absolute value expressions in order from least to greatest. Hint . . . when an expression is inside absolute value signs, follow the order of operations to simplify the expression inside the absolute value signs, and then determine the absolute value of the simplified expression.