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Explain multiplicative inverse. Give mathematical explanation.



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The multiplicative inverse, also known as the reciprocal, is the number that when multiplied by a given number results in 1. In other words, it is a number that satisfies the equation:

$$a * x = 1$$

where x is the multiplicative inverse of a.

For example, the multiplicative inverse of 2 is 1/2, since $2 * (1/2) = 1$. The multiplicative inverse of -3 is -1/3 since $-3 * (-1/3) = 1$.

It is important to note that not all numbers have multiplicative inverses. For example, the number 0 does not have a multiplicative inverse, as any number multiplied by 0 is equal to 0, not 1.

In mathematical terms, the multiplicative inverse of a number a is a number x such that the product of a and x is equal to the multiplicative identity, which is 1. This means that the inverse of a number is only defined if the number is non-zero. In other words, the multiplicative inverse is only defined for non-zero real numbers.



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Js function to implement this without using builtin function



Here is a JavaScript function to find the multiplicative inverse of a number:

javascript

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```
function multiplicativeInverse(a) {  
  if (a === 0) {  
    return "undefined";  
  } else {  
    return 1 / a;  
  }  
}
```

This function takes in a number as an argument and checks if it is equal to 0. If it is, the function returns "undefined" since 0 does not have a multiplicative inverse. If it is not equal to 0, the function returns 1 divided by the number, which is the multiplicative inverse.

