# Big O Notation Cheat Sheet

**Ordered From Worst to Best**

O(n!)
- For heavy brute force computations such as generating all permutations of a string

$O(2^n)$
- For brute force computations such as calculating all the

$O(n^2)$
- For iterating 2D arrays or having a nested loop that depends on the size of the first loop

O(nlogn)
- For anything with sorting in it

O(n)
- For iterating over a 1D array

O(logn)
- For searching a sorted array using binary search or searching a binary search tree
- The height of a binary search tree is of size logn

O(1)
- For constant operations such as math or looking up an index in an array or hashmap