Example Algorithm Complexity Values

See this table of common algorithm O(N) for N = 1000 values to get a sense of their relative sizes.

Type	**O(N)**	**N = 1000**	**O(1000)**
Logarithmic	$\log_2(N)$	$\log_2(1000)$	9.96578
Linear	N	1000	1,000
Linearithmic	$N \log_2(N)$	$1000 \log_2(1000)$	9,965.78
Quadratic	N^2	1000^2	1,000,000
Cubic	N^3	1000^3	1,000,000,000
Exponential	2^N	2^{1000}	$1.071508607 \times 10^{301}$
Factorial	N!	1000!	?

For programs with nested loops, e.g. for &/or while, where each loop is dependant on N, i.e. doing N iterations then:

1 **for** loop - $O(N^1) = O(N)$,

2 **for** loops - $O(N*N) = O(N^2)$,

3 **for** loops - $O(N*N*N) = O(N^3)$
...
k **for** loops - $O(N*N* \ldots *N*N) = O(N^k)$