What is it?

Describes the limiting behavior of a function as it’s argument approaches some value or infinity.

Why?

Helps describe how a function performs as inputs increase. Provides a way to measure how a function will behave as it is put under stress. Provides a way of evaluating an algorithm.

How used?

Characterizes functions according to their growth rates.

Useful with small number of inputs for comparing algorithms?

TODO

Fct 1 is big-oh of Fct 2?

Constants and lower order terms.

Big-oh notation tends to ignore including these as the input parameter becomes sufficiently large. This is because the contribution to the algorithm of these items becomes relatively less important that the higher order term. For example, given f(x) -> x-squared + x + 2, the x-squared term dominates as x becomes larger. For another example, *T*(*n*) = 1,000,000*n*2, if *U*(*n*) = *n*3, , as n becomes larger, the 1,000,000 coefficient becomes less and less important relative to the higher order term n-cubed.

Given

Terms

Limiting behavior - The act of a function approaching a value as some parameter to the process approaches some value. Related to calculus.

Growth rate - how fast a term grows given an increase in inputs. For example, given x-squared and x, x-squared has a larger growth rate as x becomes larger.

Growth rate bounds -

Order - another term for growth-rate. Given f(x) -> 3x-squared + x + 2, there are

Simplification rules - Given f is a function of several terms added together, only keep the terms with the

Term - An element of a function, for example given f(x) -> 3x-squared + x + 2, 3x-squared is a term, x is a term, and 2 is a term. 3 Is a constant, x is a lower-order term, 2 is a constant.

Complexity - The number of operations required to solve a problem

Space complexity -

### asymptotic - describing of limiting behavior