Common growth rate functions

The order notation cheat sheet

- Typical growth rates in order
  - Constant: $O(1)$
  - Logarithmic: $O(\log n)$ $\left(\log_k n, \log(n^2) \in O(\log n)\right)$
  - Poly-log: $O\left((\log n)^k\right)$
  - Sublinear: $O(n^c)$ (c is a constant, $0 < c < 1$)
  - Linear: $O(n)$
  - Log-linear: $O(n \log n)$
  - Superlinear: $O(n^{1+c})$ (c is a constant, $0 < c < 1$)
  - Quadratic: $O(n^2)$
  - Cubic: $O(n^3)$
  - Polynomial $O(n^k)$ (k is a constant) "tractable"
  - Exponential $O(c^n)$ (c is a constant > 0) "intractable"

Increases

Factorial $O(n!)$