Ranking Functions by Growth Speed

$$\frac{1}{2}^{n} < n^{-1} < 7 = 123456789 < \log\log n < \log_4(n) = \log(n) = \log(n^3) < \log^2 n < \log^{\log n} n < n^{1/\log n} < \sqrt{n} = n^{1/2} < n^{3/4} < n^{4/3} < n + 5 < n\log n < 3^{\log n}$$

$$= 4^{\log n} < n^2 = n^2 + 10^{100} n\log n < n^2\log n < n^4 < n^{\log\log n} < 2^n = 4^{n-1} < n2^n < 4^n = 4^{2n} < n! < n^n < 4^{n^2}$$