

Comparison of Running Times

time → $f(n)$ ↓	1 second	1 minute	1 hour	1 day	1 month	1 year	1 century
$\log n$							
\sqrt{n}							
n							
$n \log n$							
n^2							
n^3							
2^n							
$n!$							

Fill in the table with the largest problem size (to within a constant) that can be solved in time t assuming the algorithm used takes $O(f(n))$ microseconds.

To find the largest problem size solvable in 1 second, since there are 1,000,000 (10^6) microseconds in a second:

$$\frac{\log n}{10^6} = 1 \qquad \log n = 10^6 \qquad n = 2^{10^6}$$

Assume 30 days per month, 12 months per year, 100 years per century.