

Asymptotic Analysis – Quiz

- Example: Running time estimates - empirical analysis
 - Personal computer executes 10^9 compares/second
 - Super-computer executes 10^{13} compares/second

	Selection sort – $O(N^2)$			Merge sort – $O(N \log_2 N)$		
N	Million	10 million	Billion	Million	10 million	Billion
PC	16.7 min	115.74 day	4005.44year	instant	0.2 sec	33.3 sec
Super Com	0.1 sec	16.7 min	115.74 day	Instant	Instant	Instant

$\log_{10} 2 \cong 0.3$
 86,400sec/day
 instant < 0.1 sec

Use a reasonable or understandable time units.
 Do not say, for example, "3660 days" nor "1220 seconds",
 but 10.0 years or 20.3 min, respectively.

※ **Bottom line:** Good algorithms are better than supercomputers.