Algorithm Efficiency

Assume that the function g(n) is the time required to run Algorithm A.

An algorithm A is said to be "of order f(n)," denoted by O(f(n)), if constants c1, c2, and n_0 can be found such that:

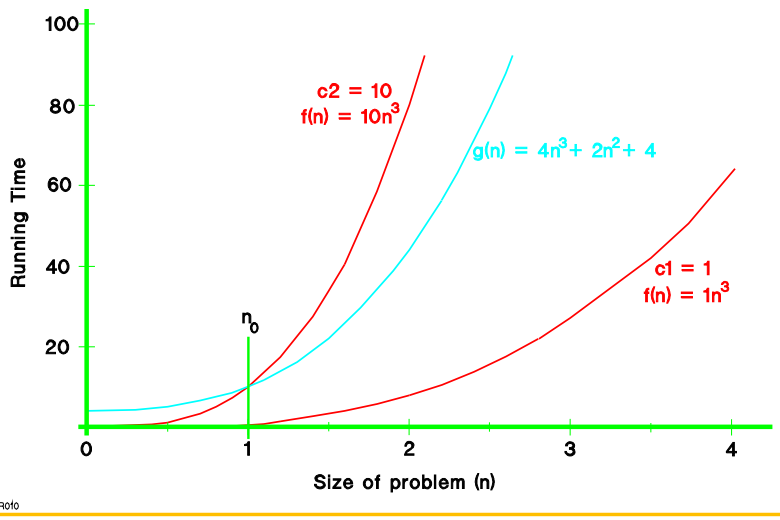
$c1 * f(n) < g(n) < c2 * f(n)$

for a problem of size $n > n_0$

Order Analysis Example

- A: initialization code executed once
- while iteration; no. of iterations depends on n
  - B: linear sequence of stmts
  - while iteration, dependent on n
    - C: linear sequence
  - D: linear sequence
- E: linear sequence
- while iteration, not dependent on n
  - F: linear sequence

Order Analysis Example



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