Time & Space Complexity

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→ For 1 for loop, Time Complexity will be → O(n)

n → Input Size

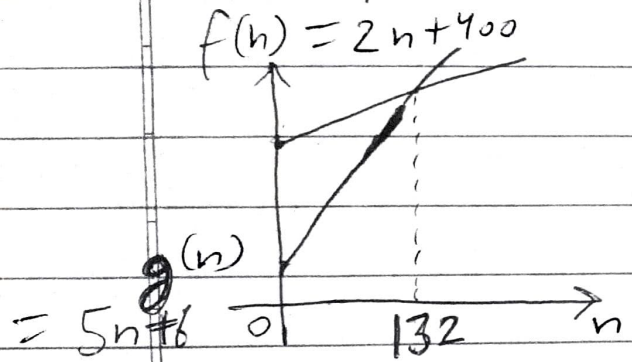
→ Large Input ⇒ More Time it takes

→ Two algorithms

$2n + 400 < 5n + 6$

$\Rightarrow n > 132$

2n+400 algo will be better than 5n+6 algo till the input size is smaller than 132



$y = mx + c$

↑ slope

⇒ Here f(n) is better than g(n)

→ g(n) grows faster than f(n) because of steeper slope than f(n) even though it starts at less interception (c).

Asymptotic Analysis

Don't worry about small inputs, worry only about large inputs.

Instructions / Steps can be performed by Computer → 10^8/sec

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(x) Length of input (10^x)	Time Complexity (Worst case algo accepted)
$\leq$ [10 .. 11]	$O(N!)$, $O(N^6)$
$\leq$ [15 .. 18]	$O(2^N * N^2)$
$\leq$ [18 .. 22]	$O(2^N * N)$
$\leq$ 100	$O(N^4)$
$\leq$ 400	$O(N^3)$
$\leq$ 2K	$O(N^2 \log N)$
$\leq$ 10K	$O(N^2)$
$\leq$ 1M	$O(N * \log N)$
$\leq$ 100M	$O(N)$, $O(\log N)$, $O(1)$