

1: remove ~~the~~ Lower terms

2: remove coefficients

Time Complexity
Asymptotic Analysis
 $25n+5$
 $n \rightarrow \infty$

Big O notation
Set Notation
 $f \in O(g)$ if f is bounded by g
if $c > 0, n_0 > 0$
 $f(n) \leq c \cdot g(n)$
for all $n \geq n_0$
 g is Upper Bound on f

$3000n+605$
 $g: 25n+5$
 $f: 12n+6$
 $c=1$
 $n_0=2$

Linear
 $f \in O(n)$

$12n+6 \leq 13n$
 $n_0=10$

$\Omega(n)$
 $c=1$
 $n_0=5$

$12n+6 > n$
 $18 > 1$



$12n+6 \leq (25n+5) \cdot 1$
 $24+6 \leq 55$
 $30 \leq 55$

$12n+6 \leq \frac{13}{30}n$
 $18 \leq 13$

$120 \leq 130$

Constant
 $f \in O(1)$

Big $\Omega(n)$ lower

$f \in \Omega(g)$ if
 $\exists c > 0, n_0 > 0, f(n) \geq c \cdot g(n)$
 $\forall n \geq n_0$

$3n^2 - 5n + 17$

Quadratic $\in O(n^2)$

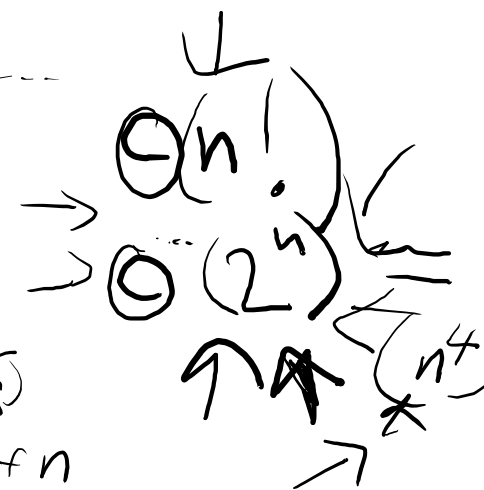
$12n+5 \in O(n^2)$

$12n+5 \in \Omega(1)$

$\hookrightarrow \in \Omega(n)$
 $\hookrightarrow \in O(n)$

theta

$12n+5 \in \Theta(n)$
order of n
Linear



$\Theta(n)$
upper
lower c, n_0