

Definition: We say $f(n) = \Omega(g(n))$ if \exists constants c and N such that $f(n) \geq cg(n)$ when $n > N$.

- Translation: for large enough n , $f(n)$ grows at least as fast as $g(n)$.
- Example: $f(n) = 43n^3 \log n$ and $g(n) = n^2$.
- Example: $f(n) = n^3$ and $g(n) = 1000n^2$.

Definition: We say that $f(n) = \Theta(g(n))$ if both $f(n) = O(g(n))$ and $f(n) = \Omega(g(n))$.

- Translation: for large enough n , $f(n)$ grows at the same rate as $g(n)$.
- Alternatively, $f(n)$ is within a constant of $g(n)$.
- Example: $f(n) = n^2$ and $g(n) = 10n^2$.