CMSC351: Big Notation

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1 The Big-O Notation

Definition: For Big O, we say

$$f(x) = O(g(x)) \text{ if } \exists x_0, C > 0 \text{ such that } \forall x \geq x_0, f(x) \leq Cg(x)$$

Essentially, we need to find some C where $g(x)$ is greater than $f(x)$ at some x_0.
Example:
Notice that

Definition: For Big Ω, we say

$$f(x) = \Omega(g(x)) \text{ if } \exists x_0, B > 0 \text{ such that } \forall x \geq x_0, f(x) \geq B(g(x))$$