5.3 Inverse Functions

* Definition: A function g is the inverse of the function f IFF
$f(g(x)) = x$ AND $g(f(x)) = x$

* Inverse: $f^{-1}(x)$

* Existence:
  - Function has inverse IFF it is one-to-one
  - If f is monotonic on its domain, then it is one-to-one and has an inverse
    - monotonic → inc. or dec. on entire domain

* Derivative of Inverse:

$$g'(x) = \frac{1}{f'(g(x))} = \frac{1}{f'(f^{-1}(x))}$$