

Math 201

Section 3.3 Derivatives of Exponential and Inverse Trigonometric Functions

Differentiability of Inverse Functions

$$\frac{d}{dx}[f^{-1}(x)] = \frac{1}{f'(f^{-1}(x))}$$

Theorem Suppose that the domain of a function f is an open interval on which $f'(x) > 0$ or on which $f'(x) < 0$. Then f is one-to-one, $f^{-1}(x)$ is differentiable at all values of x in the range of f , and the derivative of $f^{-1}(x)$ is given by the formula above.

Derivatives of Exponential Functions

$$\frac{d}{dx}[e^x] = e^x \quad \frac{d}{dx}[b^x] = \ln(b)b^x$$