

Calculus BC

Section 5.3 - Inverse Functions

Obj: - To find the derivative of an inverse function.

1. a) Find the slope of the tangent line to $f(x) = x^2$ at the point $(4,16)$.

b) Find the slope of the tangent line to $f^{-1}(x)$ at the corresponding inverse point.

2. a) Find the slope of the tangent line to $f(x) = x^{\frac{1}{3}}$ at the point $(8,2)$.

b) Find the slope of the tangent line to $f^{-1}(x)$ at the corresponding inverse point.

Derivatives of Inverses of Differentiable Functions:

Theorem: $\left. \frac{df^{-1}}{dx} \right|_{(f(a), a)} =$

3. Given $f(x) = x^2 + 3x$, find $\frac{df^{-1}}{dx}(10)$.

-original point _____

-inverse point _____