Activity Score - 2/2

Derivative of the Square Root Function

a) Use implicit differentiation to find the derivative of the inverse of $f(x) = x^2$ for $x > 0$.

b) Check your work by finding the inverse explicitly and then taking its derivative.

a.)

$y = x^2$

$x = y^2$

$\frac{d}{dx}(x = y^2)$

$1 = 2yy'$

$y' = \frac{1}{2y}$ or $\frac{1}{2\sqrt{x}}$

b.)

$x = y^2$

$y = \sqrt{x}$

$= \frac{d}{dx}(x^{\frac{1}{2}})$

$= \frac{1}{2}x^{-\frac{1}{2}}$

$y' = \frac{1}{2\sqrt{x}} = \frac{1}{2y}$

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