Calculus I, Fall 2013

Quiz 2

Oct 17, 2013

Show all details.

1. Evaluate $\frac{d^4}{dx^4}\big(x^4\cos(x-1)\big)|_{x=1}$.
2. Find the derivative of $y = \sin^2(\tan(x^3))$. Need not simplify your final expression.
3. Suppose we know that $\frac{d}{dx}x^n = nx^{n-1}$ for all integers n. Show that this is also true for $n = q/p$ where p, q are integers and $p \neq 0$.
4. Use implicit differentiation (and not other methods) to find dy/dx and d^2y/dx^2 at $(1,1)$ where $y(x)$ is implicitly given by $x^4 + y^4 = 2$.
5. True or False? (prove it if true, correct it if false).

   Let g be the inverse function of f and $\frac{d}{dx}f(x) = f_1(x)$, $\frac{d}{dx}g(x) = g_1(x)$.
   Then $f_1(x)g_1(x) = 1$.

Calculus I, Fall 2013

Quiz 2

Oct 17, 2013

Show all details.

1. Evaluate $\frac{d^4}{dx^4}\big(x^4\cos(x-1)\big)|_{x=1}$.
2. Find the derivative of $y = \sin^2(\tan(x^3))$. Need not simplify your final expression.
3. Suppose we know that $\frac{d}{dx}x^n = nx^{n-1}$ for all integers n. Show that this is also true for $n = q/p$ where p, q are integers and $p \neq 0$.
4. Use implicit differentiation (and not other methods) to find dy/dx and d^2y/dx^2 at $(1,1)$ where $y(x)$ is implicitly given by $x^4 + y^4 = 2$.
5. True or False? (prove it if true, correct it if false).

   Let g be the inverse function of f and $\frac{d}{dx}f(x) = f_1(x)$, $\frac{d}{dx}g(x) = g_1(x)$.
   Then $f_1(x)g_1(x) = 1$.