Quiz 2

Oct 14 2003, 11:30 AM - 12:00 AM

Show all details.

(1) (30 pts) Find the derivatives of $y = (\frac{\sin x}{1+\cos x})^3$ and $y = (1 + \cos^3(2x - 1))^{-1/2}$.

(2) (20 pts) Use implicit differentiation to find dy/dx and d^2y/dx^2 at $(1, 1)$ where $y(x)$ is implicitly given by $x^{2/3} + y^{2/3} = 2$.

(3) (30 pts) Find an approximate value of $\sqrt[3]{1.009}$ using linear approximation. Show that the error is smaller than 10^{-4}.

(4) (20 pts) Write down Newton's method for the numerical evaluation of $\sqrt{3}$. Just give the formula and need not get the numerical value. Does it always converge to $\sqrt{3}$ for any initial value?

Calculus, Fall 2003

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