Quiz 2

Oct 14, 2004

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 $\sqrt{5}$. Just give the formula and need not get the numerical value. Does it always converge to $\sqrt{5}$ for any initial value? Explain.

Calculus, Fall 2004

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