

Quiz
September 21, 2007

Problem 1. 1) Write the formula for $f(x, y)$ if $x^4 - y^4 = (x - y)f(x, y)$.

2) Using this formula find the limit $\lim_{x \rightarrow 2} \frac{x^4 - 16}{x - 2}$.

3) Using the definition of the derivative calculate the derivative $f'(2)$ if $f(x) = x^4$.

Problem 2. Differentiate the following functions (you do not have to simplify the expressions):

1) $f(x) = x^{110} - 4x^{22} + 1$

2) $f(x) = \sqrt[10]{x} \frac{\sqrt{x} + 10}{x^2 + 4}$