

Math 3, Winter 2014 – Written Homework 1

This homework assignment is due in class on Monday, January 27. Show all work in a legible and understandable manner.

1. Consider the function $f(x) = \frac{x^2 + 5x - 50}{x - 5}$.
 - (a) What is the domain of f ?
 - (b) Find $\lim_{x \rightarrow 0} f(x)$.
 - (c) For each point not in the domain of $f(x)$, how should $f(x)$ be defined to be continuous there? Give a formula for the continuous extension of f that includes these points in its domain.
2. Find the equation of the line tangent to the curve $y = \frac{3}{x}$ at the point $(6, \frac{1}{2})$.
3. Let $g(x) = 12 - x - x^2$. Using the limit definition of derivative, find $g'(x)$.