

MATH 30, QUIZ 6: MARCH 20, 2020

Problem 1. Find the derivative of $f(x) = \ln(4x^3 + x)$. (This is one of your homework problems.)

Problem 2. Let f be a function with inverse g (sometimes written as f^{-1} , but let's just call it g).

- (a) Write down an equation showing what it means for f and g to be inverses.
- (b) Find an equation relating f' to g' . [Hint: use part (a) and the Chain Rule.]
- (c) Consider the special case when $f(x) = x + \sqrt{x}$. Find $g'(6)$.

Problem 3. (a Classic!) Find the derivative of $f(x) = x^x$.