Math 19A Feb 23, 2000

Calculus for Science, Engineering, and Mathematics Winter 2000, UCSC

## QUIZ 6

- 1. Prove that  $(\tan x)' = \sec^2 x$ . (*Hint*: recall that  $\tan x = \sin x/\cos x$  and differentiate using the quotient rule).
- **2.** Use the power rule for integer exponents and implicit differentiation to prove the power rule for rational exponents (*Hint*: Let  $y := x^{\frac{p}{q}}$  where p and q are integers. Then  $y^q = x^p$ . Differentiate both sides implicitly to show that  $y' = \frac{p}{q} x^{\frac{p}{q}-1}$ ).

Each problem is worth 5 points.