

Quiz 4A, Calculus I

Dr. Graham-Squire, Spring 2013

Name: _____

1. (3 points) Use logarithmic differentiation to find $f'(x)$ for $f(x) = x^{(\cos x)}$.

2. (3 points) Use differentials to approximate $\sqrt{4.1}$.

3. (4 points) Water is leaking out of an inverted conical tank at a rate of $2 \text{ ft}^3/\text{min}$. The tank has a height of 8 feet and a radius at the top of 2 feet. How fast is the height of the water level changing when the water level is 3 feet high? The volume of a cone is $V = \frac{1}{3}\pi r^2 h$. Round your answer to the nearest 0.01.