

Math 1A

Quiz 8 - October 21, 2009

Name:

1. A cat decides to climb a tree, but realizes that it must first go to the bank where its account is growing according to the function $y = \sqrt[3]{t}$. Use linear approximation to estimate how much money the cat has after 30 days, ($t = 30$.)

2. After getting the money, the cat decides that climbing trees is lame, and instead decides to state Rolle's Theorem. It writes:

If $f(x)$ is a continuous function on the interval $[a, b]$ and $f(a) = f(b)$ then there is some point c such that $f'(c) = 0$.

Is this correct? Why or why not?

3. The cat then becomes your GSI and decides to be very generous with this problem and grade it on a curve: Here's how it will work. Consider the function:

$$f(x) = x^3 - 3x - 1; \text{ on } [-3, 0]$$

You should give me two numbers a and b . To grade your exam, I will compute $f(a) - f(b)$ and your grade will be proportional to how big this is! In other words, you want to make this difference be as big as possible. Go at it!