



CALCULUS I
FALL 2015

WRITTEN ASSIGNMENT 5
DUE SEPTEMBER 16

Exercise 1. Let $f(x) = x^{2/3}$.

- a. Use the limit definition of the derivative to show that $f'(0)$ does not exist.
- b. Use the limit definition of the derivative to compute $f'(a)$ for $a \neq 0$. [*Suggestions:* Use the limit definition in the form $f'(a) = \lim_{x \rightarrow a} \frac{f(x) - f(a)}{x - a}$, and then use the difference of cubes identity $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$ to factor the denominator.]