

Math 181, Fall 2018 Handout: Limit definition of derivatives

The definition of the derivative of a function

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}.$$

(You should memorize this.)

Use the limit definition (i.e., practice limits!) to evaluate the derivatives:

- $f(x) = x^2 \quad \implies \quad f'(x) =$

- $f(x) = \frac{1}{x} \quad \implies \quad f'(x) =$

- $f(x) = \sqrt{x} \quad \implies \quad f'(x) =$

(Questions like this are very good quiz/exam questions.)