

Math 181 Quiz 6 Version A

1. Precisely define  $\lim_{x \rightarrow a^+} f(x) = -\infty$  using inequalities in terms of  $\delta$  and  $N$ .

2. Use the limit definition to explain why the derivative of  $f(x) = 1/x$  is  $f'(x) = -1/x^2$ .

3. State the following derivative rules from memory:

$$\frac{d}{dx} x^\alpha = \boxed{\phantom{000}} \quad \frac{d}{dx} \sin x = \boxed{\phantom{000}} \quad \frac{d}{dx} a^x = \boxed{\phantom{000}}$$

$$\frac{d}{dx} \ln x = \boxed{\phantom{000}} \quad \frac{d}{dx} (fg)(x) = \boxed{\phantom{000}}$$

$$\frac{d}{dx} \cos x = \boxed{\phantom{000}} \quad \frac{d}{dx} (f \circ g)(x) = \boxed{\phantom{000}}$$