

## Quiz 6

Note: Because this is a take-home quiz, I will probably impose stiffer penalties for incorrect notation and "typos" that I usually overlook during in-class quizzes/tests. So check your work carefully and justify your answers. Due: Friday (4/4) at the beginning of class.

1. Simplify each expression as much as possible.

(a)  $3^{\log_5 25}$

(b)  $\log_4 2 + \ln e$

2. Differentiate each function

(a)  $f(x) = \ln(\arctan(x^3))$

(b)  $f(x) = (2x)^{x^2+5x}$

3. Find the indicated limit.

(a)  $\lim_{x \rightarrow 0} \frac{\sin^{-1} x}{\ln(2x+1)}$

(b)  $\lim_{x \rightarrow \infty} (4x)^{1/x}$