$MATH\ 113-QUIZ\ 8-30\ OCTOBER\ 2012$

Answer all of the following questions in the space provided. Show all work as partial credit may be given. Answers without justification, even if they are correct, will earn no credit.

1. (5 pts.) Find
$$f'(x)$$
 and $f''(x)$ if $f(x) = \log_4\left(\frac{x}{x-1}\right)$.

2. (5 pts.) Find
$$\frac{dy}{dx}$$
 if $y = \tan^{-1}(3^{x^2})$.