Full name(s): _____ .

Questions

1. Let $f(x) = \frac{\log_3(x+2)-9}{\log_3(x+2)-27}$.
   - What is the (largest possible) domain of f?
   - What is f^{-1}?
   - What is the (largest possible) domain of f^{-1}?
2. Write $\sin(\cot^{-1}(x))$ without using trig functions.
3. Sketch a graph of $f(x) = \frac{(x+1)(x-1)^2}{(x-2)^2}$
4. Show using ϵ-δ calculus that $\lim_{x\to 3} 5x - 1 = 14$.