

## Infinite Limits and Limits at Infinity- HW Problems

1. Using the limit definition prove the following limits:

a.  $\lim_{x \rightarrow 1} \frac{1}{(x-1)^2} = +\infty$

b.  $\lim_{x \rightarrow -3} \frac{-1}{(x^2-9)^2} = -\infty$

c.  $\lim_{x \rightarrow \infty} (x^3 - x^2) = +\infty$

d.  $\lim_{x \rightarrow -\infty} \frac{x}{2x+1} = \frac{1}{2}$

e.  $\lim_{x \rightarrow \infty} e^{-x} = 0.$

f.  $\lim_{x \rightarrow -2} \frac{-1}{(x+2)^2(x-2)^2} = -\infty$