Math 100 – WORKSHEET 3
INFINITE LIMITS AND LIMITS AT INFINITY

1. INFINITE LIMITS

(1)

    (a) (Final, 2014) Evaluate $\lim_{x \to -3^+} \frac{x+2}{x+3}$.

    (b) Let $f(x) = \frac{x-3}{x^2+x-12}$. What is $\lim_{x \to 4} f(x)$? What about $\lim_{x \to -4^+} f(x)$, $\lim_{x \to -4^-} f(x)$?

(2) Evaluate

    (a) $\lim_{x \to 1} \frac{1}{(x-1)^2}$

    (b) $\lim_{x \to 4} \frac{\sin x}{|x-4|}$

    (c) $\lim_{x \to \frac{\pi}{2}^+} \tan x$, $\lim_{x \to \frac{\pi}{2}^-} \tan x$.

(1) Evaluate the following limits:

(a) $\lim_{x\to\infty} \frac{x^2+1}{x-3} =$

(b) (Final, 2015) $\lim_{x\to\infty} \frac{x+1}{x^2+2x-8} =$

(c) (Quiz, 2015) $\lim_{x\to-\infty} \frac{3x}{\sqrt{4x^2+x}-2x} =$

(d) $\lim_{x\to\infty} \frac{\sqrt{x^4+\sin x}}{x^2-\cos x} =$

(e) $\lim_{x\to-\infty} \left(\sqrt{x^2+2x} - \sqrt{x^2-1}\right) =$