I. Given the graph of the function f below, please answer the following questions: (8 points total)

(a) Give the equations of all vertical asymptotes of f. (2 points)

(b) Give the equations of all horizontal asymptotes of f. (2 points)
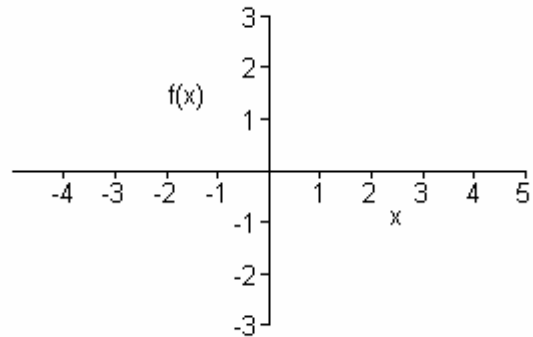
(c) Find each of the indicated limits from the graph. If the limit DNE as a number please determine if it exists in the infinite sense. (1 point each)

$$\lim_{x\to 3^-} f(x) = \underline{\quad\quad} \qquad \lim_{x\to -2^+} f(x) = \underline{\quad\quad} \qquad \lim_{x\to 0} f(x) = \underline{\quad\quad} \qquad \lim_{x\to -\infty} f(x) = \underline{\quad\quad}$$

II. Find the indicated limits. If the limit DNE as a number please determine if it exists in the infinite sense. You must show all work on this quiz for any credit. (3 points each, 12 total)

(a) $\lim\limits_{w\to 0} \dfrac{(w-1)^2 - 1}{w}$

(b) $\lim\limits_{\theta\to \pi^+} \dfrac{\theta}{\sin(\theta)}$

(c) $\lim\limits_{x\to \infty} \dfrac{1 - 2x^2 - x^4}{5 + x - 3x^4}$

(d) $\lim\limits_{x\to 2^-} \dfrac{x-1}{4 - x^2}$