Math 2A Worksheet: 2.6 Limits at Infinity

Write your names and Student ID numbers at the top of the page

1. Evaluate the following limits at infinity.

   (a) $\lim\limits_{x \to -\infty} \dfrac{4x^3 + 6x^2 - 2}{2x^3 - 4x + 5}$

   (b) $\lim\limits_{x \to -\infty} \dfrac{x^2}{\sqrt{x^4 + 1}}$

   (c) $\lim\limits_{x \to -\infty} \sqrt{x^2 + 1}$

   (d) $\lim\limits_{x \to \infty} \dfrac{e^{3x} - e^{-3x}}{e^{3x} + e^{-3x}}$

2. Find all vertical and horizontal asymptotes of the below functions

(a) $f(x) = \dfrac{2x^2 + 1}{3x^2 + 2x - 1}$

(b) $h(x) = \dfrac{1 + x^4}{x^2 - x^4}$