Lesson 4.2 – Horizontal and Vertical Asymptotes

1. Evaluate the following limits.

   (a) $\lim_{x\to+\infty} \frac{3x^4-10x}{2x^5+4x^2+7}$

   (b) $\lim_{x\to-\infty} \frac{1-7x+4x^3}{2x+10x^3}$

   (c) $\lim_{x\to+\infty} \frac{9+3x^2-7x^5}{1-2x+8x^4}$

   (d) $\lim_{x\to-\infty} \frac{2x^3+9x-8}{5x-2}$

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

2. Evaluate the following limits.

   (a) $\lim_{x\to2} \frac{x^2+4x-7}{x-3}$

   (b) $\lim_{x\to0} \frac{x^3+1}{x^2-2x}$

   (c) $\lim_{x\to-1} \frac{2x^5+3x+2}{x^3+2x^2+x}$