**Calculus Workshop #6**

---

1. Compute the following limits:

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

   (b) $\lim_{x\to\infty} \dfrac{x^3}{\sqrt{4+x^4}}$

   (c) $\lim_{x\to 4} \dfrac{\sqrt{x+5}-3}{x-4}$

   (d) $\lim_{x\to\infty} \dfrac{(2\sqrt{x}+1)^4}{3x^2-5}$

   (e) $\lim_{x\to\infty} \dfrac{x^2-5x(x-1)^3}{(x+3)^4}$

   (f) $\lim_{x\to\infty} \dfrac{\sqrt{3x^2+2}}{(\sqrt{x}+5)^2}$

   (g) $\lim_{x\to\infty} \dfrac{x^2+2}{x\sqrt{x^2+3x-2}}$

   (h) $\lim_{x\to 9^-} \dfrac{x\sqrt{9-x}}{x-9}$

   (i) $\lim_{x\to-\infty} \dfrac{x^2+2}{\sqrt[3]{x^3+3x-2}}$

   (j) $\lim_{x\to-\infty} \dfrac{x^4+2x\cos x}{(1+3x-2x^2)^2}$

2. Use your calculator to find the following:

   (a) $\lim_{x\to\infty} \dfrac{\ln x}{x}$

   (b) $\lim_{x\to\infty} \dfrac{\ln x}{\sqrt{x}}$

   (c) $\lim_{x\to\infty} \dfrac{e^x}{x}$

   (d) $\lim_{x\to\infty} \dfrac{e^x}{x^5}$