SECTION 4.8 L'HÔPITAL'S RULE (DAY 2)

1. L'Hôpital's Rule (again but even better)....

2. Evaluate the following limits using any appropriate method.

   (a) $\displaystyle \lim_{x \to \infty} \frac{\ln(x)}{\sqrt{x}}$

   (b) $\displaystyle \lim_{x \to 2} \frac{x^2 - 4}{x^2 - 2x}$

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

   (d) $\displaystyle \lim_{x \to 0} \frac{\cos(4x)}{3e^{3x}}$

3. Now for some more sophisticated applications.

(a) $\lim\limits_{x\to\infty} x\sin(\dfrac{\pi}{x})$

(b) $\lim\limits_{x\to 0^+} (1+x)^{1/x}$

(c) $\lim\limits_{x\to\infty} \dfrac{e^{x/10}}{u^2}$

(d) $\lim\limits_{x\to 1^+} \left(\ln(x^4-1) - \ln(x^9-1)\right)$