SI Session Week 3
Thursdays 4:00 – 5:30 PM, Rm. 1229
Fridays 2:00 – 3:30 PM. Rm. 1223

Prof. Stockton : Calculus I : Fall 2007
SI Leader : Neil Jody

Directions:
Take limits going to infinity. Take limits from both left and right at all points of discontinuity.

Find $\frac{d}{dx}$, 1st by definition, then by rules.

1.) f(x) = $\frac{\sin(\pi x)}{x+3}$

2.) f(x) = $\frac{\cos\left(\frac{\pi}{x}\right)}{x-2}$

3.) f(x) = $\frac{\sin(2x)-2\sqrt{x}\sin x+4x^2}{x}$

4.) f(x) = $\frac{\sqrt{3x^4+x}}{x^2-8}$

5.) f(x) = $\sqrt[3]{\frac{2+3x-5x^2}{1+8x^2}}$

6.) f(x) = $\frac{\cos^2(x)}{x}$

7.) f(x) = $\frac{\sqrt{4x^2+5x}}{x-1}$

8.) f(x) = $\frac{2-x}{\sqrt{7+6x^2}}$

9.) f(x) = $\frac{|x^2-4|x}{x+2}$

Tips: $\frac{Big\#}{Small\#} = Huge\# \Rightarrow \pm\infty$;
$\frac{Small\#}{Big\#} = tiny\# \Rightarrow 0$

10.) f(x) = $\frac{4x-3}{\sqrt{x^2+1}}$

11.) f(x) = $\frac{\sqrt{x}-\sqrt{2}}{x-2}$

12.) f(x) = $\frac{x^4-16}{x^2-x-2}$

13.) f(x) = $\frac{\sqrt{4-9x^2}}{x^2}$

Derivatives:

1.) f(x) = $\frac{1}{\sqrt{x-1}}$

2.) f(x) = $\sqrt{\frac{x}{2}}$

3.) f(x) = $3+\frac{2}{x-1}$

Practice: Simplify into Lowest Terms

$$\frac{1}{h}\left[\frac{2(x+h)+3}{(x+h)-1}-\frac{2x+3}{x-1}\right]$$

$$\frac{A}{2\sqrt{Ax-B^2}}-\left[\frac{B}{1+\frac{Ax-B^2}{B^2}}\cdot\frac{A}{2B\sqrt{Ax-B^2}}\right]$$