MATH 410, FALL 2009

SOME ELEMENTARY LIMITS:

$$\lim_{x\to 0}\frac{\sin(3x)}{x} \qquad \lim_{x\to 0}\frac{\sin(2x)}{\sin(5x)}$$

$$\lim_{x\to 0}\frac{1-\cos(x)}{x^2} \qquad \lim_{x\to a}\frac{\sin(x)-\sin(a)}{x-a}$$

$$\lim_{x\to 0}\frac{\tan(x)-\sin(x)}{x^3} \qquad \lim_{x\to 0}\frac{\arcsin(x)}{x}$$

$$\lim_{x\to 0}\frac{\arctan(2x)}{\sin(3x)} \qquad \lim_{x\to 1}\frac{1-x^2}{\sin(\pi x)}$$

$$\lim_{x\to 1}\frac{\sqrt{x}-1}{x^{1/3}-1} \qquad \lim_{x\to 4}\frac{3-\sqrt{5+x}}{1-\sqrt{5-x}}$$

$$\lim_{x\to 64}\frac{\sqrt{x}-8}{x^{1/3}-4} \qquad \lim_{x\to 0}\frac{\sqrt{1+x}-\sqrt{1-x}}{x}$$

$$\lim_{x\to -1}\frac{x^3+1}{x^2+1} \qquad \lim_{x\to 1}\frac{x^3-3x+2}{x^4-4x+3}$$

$$\lim_{x\to 0}\frac{1-\sqrt{\cos(x)}}{x^2} \qquad \lim_{x\to 1}\frac{\cos(\pi x/2)}{1-\sqrt{x}}$$

$$\lim_{x\to 0}\frac{\ln(1+x)}{x} \qquad \lim_{x\to 0}\frac{\ln(\cos(x))}{x^2}$$

$$\lim_{x\to 0}\frac{1-e^{-x}}{\sin(x)} \qquad \lim_{x\to 1}\left(\frac{1}{1-x}-\frac{3}{1-x^3}\right)$$