Due Wed. 3/22: 2.1 #1-41 odd;

Due Mon. 3/27: 2.1 #65-89 odd; 2.2 #3-67 odd;

Due Wed for 8th per, Thurs for 7th per:

2.2 #87-95 odd; 97-100 all; 105,106,111,113,115

Due Monday:

2.3 #1-53odd,63-85odd,91-105odd,111-115odd

$$f(x) = \tan x$$

$$f'(x) = \left(\frac{\sin x}{\cos x}\right)'$$

$$= \frac{(\cos x)(\sin x)' - (\sin x)(\cos x)'}{(\cos x)^2}$$

$$= \frac{(\cos x)(\cos x) - (\sin x)(-\sin x)}{\cos^2 x}$$

$$= \frac{\cos^2 x + \sin^2 x}{\cos^2 x} = \frac{1}{\cos^2 x} = \sec^2 x$$

2.4 - The Chain Rule

$$[f(g(x))]' = f'(g(x)) \cdot g'(x) \cdot x'$$

$$[h(g(f(x)))]' = h'(g(f(x))) \cdot g'(f(x)) \cdot f'(x) \cdot x'$$

$$f(x) = \sin(x^5 - 3x^2)$$

$$f'(x) = [\cos(x^5 - 3x^2)] \cdot (5x^4 - 6x)$$

$$(5x^4 - 6x)\cos(x^5 - 3x^2)$$

$$= 5x^4\cos(x^5 - 3x^2) - 6x\cos(x^5 - 3x^2)$$

$f(x) = \cos[5\sin(7x)]$

$y = \cos u$

$u = 5\sin v$

$v = 7x$

$$f'(x) = -\sin[5\sin(7x)] \cdot 5\cos(7x) \cdot 7$$

$$= -35\cos 7x \sin(5\sin 7x)$$

$f(x) = (5x)(\sin(x^2))$

$$f'(x) = (5x)(\sin(x^2))' + (5x)'(\sin(x^2))$$

$$= 5x\cos(x^2) \cdot 2x + 5\sin(x^2)$$

$$= 10x^2\cos(x^2) + 5\sin(x^2)$$