

Name:

Class Quiz 7

October 19, 2016

Find the following derivatives

a-  $f(t) = \frac{t^2 + 3t^{\frac{3}{2}}}{\sqrt{t}} = t^{3/2} + 3t$

$$f'(t) = \frac{3}{2}t^{1/2} + 3$$

b-  $f(x) = \arctan(\sec(x))$

$$f'(x) = \frac{\sec(x) \tan(x)}{1 + (\sec x)^2}$$

c-  $f(r) = e^2 + \pi\sqrt{15}$

$$f'(r) = 0$$

d-  $f(x) = e^{3+x^2+x} \cdot (x^{13})$

$$f'(x) = [(2x + 1)e^{3+x^2+x} \cdot x^{13}] + [e^{3+x^2+x} \cdot (13x^{12})]$$

e-  $f(x) = (x^4 + 3x^3 - 2x + 17)^{83}$

$$f'(x) = 83(x^4 + 3x^3 - 2x + 17)^{82}(4x^3 + 9x^2 - 2)$$

f-  $f(x) = \left(\sin(\cos^2(x))\right)^3$

$$f'(x) = 3\left(\sin(\cos^2(x))\right)^2(\sin(\cos^2(x)))' = 3\left(\sin(\cos^2(x))\right)^2\left(\cos(\cos^2(x))[2\cos(x)(-\sin(x))]\right)$$

g-  $f(x) = \csc(e^x + 1.2x^2 + 15.4)$

$$f'(x) = -\csc(e^x + 1.2x^2 + 15.4)\cot(e^x + 1.2x^2 + 15.4)[e^x + 2.4x]$$

h-  $f(x) = \frac{\cos(x) + \sin(x^2)}{\cot(x)}$

$$f'(x) = \frac{(-\sin(x) + \cos(x^2)[2x])(\cot(x)) - (\cos(x) + \sin(x^2))(-\csc^2(x))}{\cot^2(x)}$$