Extra Credit Quiz

Name: Starlan Davis Net ID: Cdavis10

Section SSS

1) Differentiate:

$\frac{4}{3} - \frac{3}{3} = \frac{1}{3}$

a) $y = e^{\sqrt{x}} - \sqrt{3}\cos x + \pi^3 - x^{4/3}$

$e^{\sqrt{x}} - (-\sqrt{3}\sin x) + 3\pi^2 - \frac{4}{3}x^{\frac{1}{3}}$

$y' = e^{\sqrt{x}} + \sqrt{3}\sin x + 3\pi^2 - \frac{4}{3}x^{\frac{1}{3}}$

b) $y = \frac{5\tan(t)}{4t^3+1}$

$y' = \frac{5\sec^2 t(4t^3+1) - 12t^2(5\tan t)}{(4t^3+1)^2}$

$\frac{d}{dx} f/g = \frac{f'g - g'f}{g^2}$

$\frac{d}{dx} 5\tan(t) = f'g + g'f$

$f = 5\tan(t)$ $f' = 5\sec^2 t$

$g = 4t^3+1$ $g' = 12t^2$

$f = 5$ $f' = 0$

$g = \tan t$ $g' = \sec^2 t$

$0(\tan t) + (5\sec^2 t)$

$\frac{d}{dx} 4t^3 + 1$

$= 4 \cdot 3t^2 + 0$

$= 12t^2 + 0$

c) $y = \cos(te^{-3t})$

$-\sin(u^{-3t}) \cdot (-3tu^{(-3t-1)}) = y'$

$\frac{d}{dx} f(g(x)) = f'(g(x)) \cdot g'(x)$

$f = \cos(u)$ $f' = -\sin u$

$g = u^{-3t}$ $g' = -3tu^{(-3t-1)}$

d) $y = \sin^5(x)$

$y' = 5\cos^4(x)$

$\frac{d}{dx} \sin^5(x) = f'(g(x)) \cdot g'(x)$

$f = u^5$

$u = \sin^5(x)$