Chain Rule ws 6

1) $f'(x) = 8\left[\frac{1}{2}(x^4 - 4x^2)^{-1/2}(4x^3 - 8x)\right]$

2) $f'(x) = \frac{1}{4}\left(\frac{2x-5}{5x+2}\right)^{-3/4}\left[\frac{(2)(5x+2) - (5)(2x-5)}{(5x+2)^2}\right]$

3) $f'(x) = \frac{\left(32x^7 - \frac{1}{2}x^{-1/2}\right)(8x^4) - (32x^3)(4x^8 - \sqrt{x})}{64x^8}$

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

$f'(x) = 3x^2 - (-1)x^{-2} + 1 - (-3)x^{-4}$

5) $f(x) = \frac{x^2 - 4x - 32}{x^2 - 36}$

$f'(x) = \frac{(2x-4)(x^2-36) - (2x)(x^2-4x-32)}{(x^2-36)^2}$

$f'(2) = \frac{9}{64}$

6) $f'(x) = 2\left[\frac{x-\sqrt{x}}{x+\sqrt{x}}\right]\left[\frac{\left(1 - \frac{1}{2}x^{-1/2}\right)(x+\sqrt{x}) - \left(1 + \frac{1}{2}x^{-1/2}\right)(x-\sqrt{x})}{(x+\sqrt{x})^2}\right]$

$f'(1) = 0$

7) $f'(x) = \frac{(1)(1+x^2)^2 - \left[(2)(1+x^2)(2x)\right](x)}{(1+x^2)^4}$

$f'(1) = -\frac{1}{4}$

8) $f'(x) = \sec^2(\log(\ln x^2))\left(\frac{1}{\ln x^2 \cdot \ln 10}\right)\left(\frac{1}{x^2}\right)(2x)$

Simplifying

1) $f'(x) = \frac{16x^2 - 32}{\sqrt{(x^2-4)}}$

2) $f'(x) = \frac{29\sqrt[4]{(5x+2)^3}}{4(5x+2)^2\sqrt[4]{(2x-5)^3}}$

3) $f'(x) = \frac{32x^{11} + 7\sqrt{x^7}}{16x^8}$

4) $f'(x) = 3x^2 + 1 + \frac{1}{x^2} + \frac{3}{x^4}$

8) $f'(x) = \frac{2}{x}\sec^2(\log(\ln x^2))\left(\frac{1}{\ln x^2 \cdot \ln 10}\right)$

7) $\frac{dy}{dx} = \frac{-2}{(x-1)^3}$

0) $\frac{dy}{dt} = (t^3 - 6\sqrt{t^5})\left(5 + \frac{1}{2\sqrt{t}}\right) + (5t + \sqrt{t})(3t^2 - 15\sqrt{t^3})$