Warm Up

Differentiate:

$$f(x)=\sqrt[4]{\frac{\left(x^5-1\right)^{-2}+3x^7}{x\sqrt{3x-5}}}$$

$$f'(x)=\frac{1}{4}\left[\frac{(x^5-1)^{-2}+3x^7}{x(3x-5)^{1/2}}\right]^{-3/4}\left[\frac{\left[-2(x^5-1)^{-3}\cdot 5x^4+21x^6\right]x\sqrt{3x-5}-\left[(x^5-1)^{-2}+3x^7\right]\left[(1)(3x-5)^{1/2}+x\left[\frac{1}{2}(3x-5)^{-1/2}(3)\right]\right]}{x^2(3x-5)}\right]$$

$$y=\left(x^4+5x\sqrt{x+\sqrt[3]{x^3+8}}\right)^4$$

$$y=\left[x^4+5x\left[x+(x^3+8)^{1/3}\right]^{1/2}\right]^4$$

$$y'=4\left[x^4+5x\left[x+(x^3+8)^{1/3}\right]^{1/2}\right]^3\left[4x^3+5\left[x+(x^3+8)^{1/3}\right]^{1/2}+5x\left[\frac{1}{2}\left(x+(x^3+8)^{1/3}\right)^{-1/2}\left[1+\frac{1}{3}(x^3+8)^{-2/3}(3x^2)\right]\right]\right]$$

Complete practice sheet using derivative Rules.