16.1/ #2) $f(x) = 2 \cdot (3x+7)^{-8}$

$$f'(x) = 2(-8)(3x+7)^{-9} \cdot 3$$

$$= \boxed{-48(3x+7)^{-9}}$$

10.) $f(x) = (3x^3+2x)^{0.3}$

$$f'(x) = (0.3)(3x^3+2x)^{-.7} \cdot (9x^2+2)$$

$$= \boxed{.3(9x^2+2)(3x^3+2x)^{-.7}}$$

12) $f(x) = \dfrac{\pi^2}{3(x^3+2)^6} = \dfrac{\pi^2}{3}(x^3+2)^{-6}$

$$f'(x) = \dfrac{\pi^2}{3}(-6)(x^3+2)^{-7}(3x^2)$$

$$= \boxed{-6\pi^2 x^2(x^3+2)^{-7}}$$

19) $f(x) = \ln(e^x + x^2)$

$$f'(x) = \dfrac{1}{e^x+x^2} \cdot (e^x+2x) = \boxed{\dfrac{e^x+2x}{e^x+x^2}}$$

21) $h(x) = f(\ln(x)) - \ln(f(x))$

$$h'(x) = f'(\ln(x)) \cdot \tfrac{d}{dx}(\ln x) - \tfrac{d}{dx}[\ln(f(x))]$$

$$= f'(\ln x) \cdot \tfrac{1}{x} - \tfrac{1}{f(x)} \cdot f'(x) = \boxed{\dfrac{f'(\ln x)}{x} - \dfrac{f'(x)}{f(x)}}$$

24) $y = 3\ln\left(\dfrac{x^2-1}{x+2}\right) = 3\ln(x^2-1) - 3\ln(x+2)$

$$\dfrac{dy}{dx} = 3 \cdot \dfrac{1}{x^2-1}(2x) - 3 \cdot \dfrac{1}{x+2} \cdot 1 = \boxed{\dfrac{6x}{x^2-1} - \dfrac{3}{x+2}}$$