Find the Derivatives

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$$\frac{d}{dx}\left(\ln(3x^5+10x^4)\right)=\frac{15x^4+40x^3}{3x^5+10x^4} \tag{1}$$

$$\frac{d}{dt}e^{-4t^3}=-12t^2e^{-4t^3} \tag{2}$$

$$\frac{d}{dx}\left((x^{50}-\sqrt[3]{x})(5^x+e^{10})\right)=(50x^{49}-\tfrac{1}{3}x^{-2/3})(5^x+e^{10})+(x^{50}-\sqrt[3]{x})5^x\ln(5) \tag{3}$$

$$\frac{d}{dz}\left(\frac{2z^4-\ln(z+9)}{15e^z-15z+e}\right)=\frac{(8z^3-\frac{1}{z+9})(15e^z-15z+e)-(2z^4-\ln(z+9))(15e^z-15)}{(15e^z-15z+e)^2} \tag{4}$$

$$\begin{aligned}\frac{d}{dx}&\left((10\sin^2(x)+x^{2/5})\frac{100}{1+3e^{-4x}}\right)\\ &=(20\sin(x)\cos(x)+\tfrac{2}{5}x^{-3/5})\frac{100}{1+3e^{-4x}}\\ &\quad+(10\sin^2(x)+x^{2/5})\frac{+1200e^{-4x}}{(1+3e^{-4x})^2}\end{aligned} \tag{5}$$

$$\begin{aligned}f(x)&=(2^{x^4}+2x^4)\sqrt[3]{x^8-9x-3}\\ f'(x)&=(4x^3 2^{x^4}\ln(2)+8x^3)\sqrt[3]{x^8-9x-3}+(2^{x^4}+2x^4)\frac{8x^7-9}{3(x^8-9x-3)^{2/3}}\end{aligned} \tag{6}$$

$$\begin{aligned}g(x)&=\left(\tan(x^{400})-500\ln(x^2+6x+3)\right)^{20}\\ g'(x)&=20\left(\tan(x^{400})-500\ln(x^2+6x+3)\right)^{19}\left(400x^{399}\sec^2(x^{400})-\frac{500(2x+6)}{x^2+6x+3}\right)\end{aligned} \tag{7}$$

$$\begin{aligned}y&=\frac{500}{\sqrt[4]{2x^7-70x+e^{2x^8}}}\\ \frac{dy}{dx}&=-125\left(2x^7-70x+e^{2x^8}\right)^{-5/4}\left(14x^6-70+16x^7e^{2x^8}\right)\end{aligned} \tag{8}$$

$$\frac{d}{dx}\left(e^{-3x}-3e^x+3e^{-x}-3ex+x^{3e}-3e\right)=-3e^{-3x}-3e^x-3e^{-x}-3e+3ex^{3e-1}-0 \tag{9}$$