Simulado - III Torneio de Derivadas da UEPG

Calcule $\dfrac{dy}{dx}$.

1. $y = \left[x \cdot \operatorname{sen}(3x) + \operatorname{tg}^5(x^4)\right]^4$
2. $y = \ln\left(x\sqrt{x+1}\right) + \sqrt[5]{e^{2-3x}}$
3. $y = \sqrt{\cos x} \cdot 10^{\sqrt{\operatorname{sen} x}} + (\cos x)^{\operatorname{sen} x}$
4. $y = a^{\ln\left(\cos\sqrt{1-2^x}\right)}$
5. $y = \frac{e^{x^2} \cdot \cos x}{3x^2 + \pi x}$
6. $y = \frac{1}{2} \cdot x \sec^2\left(\operatorname{sen}\left(\frac{x}{x^2+1}\right)\right)$
7. $y = 10^{2x \cdot \operatorname{tg} x} \cdot \sqrt{x + \sqrt{2+5x}}$
8. $y = \operatorname{cossec}\left(\operatorname{tg}(\cos x) - x\operatorname{sen} x\right)$
9. $y = 2\theta + 30\ln\left[\operatorname{sen}\left(\theta + e^x\right) - \cos\theta\right]$, em que $\theta = \theta(x)$.
10. $\operatorname{arctg}\left(\dfrac{y}{x}\right) = \dfrac{1}{2}\ln(x^2+y^2)$