8.6 Logarithmic Differentiation

Logarithmic Differentiation –

        Steps:

Differentiate $y = \dfrac{e^x \sqrt{x^2 + 1}}{\left(x^2 + 2\right)^3}$

If $f(x)<0$ for some values of x, then we can not take the logarithm of both sides ($\ln y$ not defined). However, we can always write $|y|=|f(x)|$ and use the formula from last lesson: $\dfrac{d}{dx}\ln|x|=\dfrac{1}{x}$

Find y' if $y=\sqrt[3]{\dfrac{x\cos x}{x^2-1}}$

Differentiate $y=x^{\sin x},\quad x>0$