

Homework Set 7

Sect 3.3: Logarithmic Differentiation

Use logarithm rules or properties to simplify the following functions.

1. $\ln(x\sqrt{x^2 - 1})$

2. $\ln\left(\frac{x^5 e^{-x}}{\cos(x)}\right)$

Use Logarithmic differentiation to compute $\frac{dy}{dx}$.

3. $y = (x^2 + 5)^3(x^2 - 1)^7$

4. $y = \sqrt{x} \cdot e^{3x^4}(x - 2)^6$

5. $y = \frac{x \sin^2 x}{x^2 + x + 2}$

6. $y = \sqrt[3]{\frac{x+1}{x^4-1}}$

7. $y = (\sqrt{x})^x$

8. $y = (\tan x)^x$

9. $y = (\ln x)^{1/x}$

10. $x^y = y^x$