

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECTION 3.4

Math 1000 Worksheet

FALL 2023

For practice only. Not to be submitted.

1. Differentiate each of the following.

(a) $f(x) = 2^{\ln(x)}$

(b) $y = \log_3(7x^5)$

(c) $y = \ln\left(\frac{5}{x^7}\right)$

(d) $g(x) = \ln\left(\frac{x^2 - 6}{x^2 + 4}\right)$

2. Use logarithmic differentiation to find $\frac{dy}{dx}$, given

(a) $y = \frac{x^{3x}(2-x)^4}{(5x^5+1)\sqrt[3]{\csc^2(x)}}$

(b) $y = \frac{\sqrt{x^2+1}}{(3x+2)[\tan(x)]^x}$