

Math 16B
Vogler
Worksheet 3

1.) Differentiate.

a.) $y = \ln(\sin x) + \cos(\ln x)$

b.) $y = 10 \ln(3 \tan x + e^{5x})$

c.) $f(x) = \csc x \cdot \ln(\cos^5 4x)$

d.) $y = \ln\left(\frac{x \sec x}{\cot x + \sin x}\right)$

e.) $y = \frac{100}{[\ln \sqrt[3]{1 + e^{-6x}}]^5}$

f.) $y = \ln(\ln(\ln(\sqrt{7-x})))$

2.) Find an equation of the line tangent to the graph of $y = \frac{2 + \ln x}{1 + x \ln x}$ at $x = 1$.

3.) Find all points (x, y) on the graph of $y = \ln\left(\frac{x}{x+1}\right)$ where tangent lines are parallel to the line $2y = x - 5$.