

Name: _____

Exponential and Logarithmic Differentiation

1) Differentiate each of the following with respect to x

1) $y = e^{x^2}$

2) $y = e^{-2x}$

3) $y = \ln(2x + 3)$

4) $y = e^{5x}$

5) $y = \ln(1-x)$

6) $y = \ln(1+x)$

7) $y = \ln(\sin(3x + 2))$

8) $y = \ln(1 + \cos x)$

9) $y = \ln(2 + e^{x^2+1} + 3x)$

10) $y = \ln(3x + \sin^2 3x)$

11) $y = \ln(4 - \cos^2 x)^3$

12) $y = \ln(\sin 3x)$

13) $y = 3e^{4x}$

14) $y = e^{t+1}$

15) $s = \ln(4x^2 + 1)$

16) $y = 2e^{x^2+x}$

17) $y = \text{Log} \sqrt{\frac{1+x}{1-x}}$

18) $y = \sin(\text{Log} x)$

19) $y = \text{Log} \sqrt{1-x^2}$

20) $y = \text{Log} \left(\frac{1 - \sin x}{1 + \sin x} \right)$

21) $y = \text{Log}(\text{Log} x)$