

Chapter 7-1 to 7-4 Review 2

1. Use the properties of logarithms to expand the quantity  $\log_3 \left( \frac{x^4 y^2}{z^3} \right)$

2. Find the inverse function of  $y = \frac{4+e^x}{7-e^x}$

Find the derivative of each.

3.  $y = \ln(x^5 \cos^2 x)$

4.  $y = \frac{\ln x}{2+x}$

5.  $f(x) = 8^{4x^5}$

6.  $f(x) = e^{3x^7 - 4x^2}$

Integrate each.

7.  $\int \tan(2x - 3) dx$

8.  $\int \frac{3x^2}{x^3-4} dx$

9.  $\int \frac{3 \sin(\ln x)}{x} dx$

10.  $\int \frac{\cos x}{2 - \sin x} dx$

11.  $\int 4^{3x} dx$

12.  $\int_1^{e^{\sqrt{\ln x}}} \frac{1}{x} dx$

11. Find  $(f^{-1})'(a)$ .  $f(x) = \sqrt{2x^3 + x^2 - x + 2}$ ,  $a = 2$ .

12. If  $h(x) = x^2 + 2x + 1$ , find  $h^{-1}(9)$ .

13. If  $f(x) = \frac{x}{\ln x}$ , find  $f'(e^3)$

14. Find the equation of the tangent line to the curve at the given point:  
 $y = \ln(e^x - x^3)$  at  $x = 0$