

Logarithmic Functions

1. Write the logarithmic equation as an exponential equation, or vice versa
(Similar to p.282 #1-8)

$$\ln 7 = 1.9459\dots$$

2. Write the logarithmic equation as an exponential equation, or vice versa
(Similar to p.282 #1-8)

$$e^3 = 20.0855\dots$$

3. Graph the function
(Similar to p.282 #9-18)

$$f(x) = \ln(x - 2)$$

4. Graph the function
(Similar to p.282 #9-18)

$$f(x) = 3 - \ln(x + 1)$$

5. Apply the inverse properties of logarithmic and exponential functions to simplify the expression
(Similar to p.282 #19-24)

$$\ln e^{3x+5}$$

6. Apply the inverse properties of logarithmic and exponential functions to simplify the expression

(Similar to p.282 #19-24)

$$e^{\ln(4x)}$$

7. Use the properties of logarithms to rewrite the expression as a sum, difference, or multiple of logarithms

(Similar to p.282 #25-34)

$$\ln \frac{x^2 y^3}{z^8}$$

8. Use the properties of logarithms to rewrite the expression as a sum, difference, or multiple of logarithms

(Similar to p.282 #25-34)

$$\ln \sqrt[4]{\frac{x^2}{x-3}}$$

9. Use the properties of logarithms to rewrite the expression as a sum, difference, or multiple of logarithms

(Similar to p.282 #25-34)

$$\ln \frac{4x(x-5)}{(x+1)^3}$$

10. Use the properties of logarithms to rewrite the expression as the logarithm of a single quantity

(Similar to p.282 #41-50)

$$\ln(5x-1) - \ln(7x+8)$$

11. Use the properties of logarithms to rewrite the expression as the logarithm of a single quantity

(Similar to p.282 #41-50)

$$5 \ln(x+3) - 2 \ln(3x) + 4 \ln(x-7)$$

12. Use the properties of logarithms to rewrite the expression as the logarithm of a single quantity
(Similar to p.282 #41-50)

$$\frac{1}{3} [2\ln(x-1) + \ln(x-7)] - 3\ln(x+8)$$

13. Solve for x or t
(Similar to p.282 #51-72)

$$e^{\ln(x^2)} - 6x = -8$$

14. Solve for x or t
(Similar to p.282 #51-72)

$$200e^{-x+3} = 800$$

15. Solve for x or t
(Similar to p.282 #51-72)

$$5 + 2\ln x = 9$$

16. Solve for x or t
(Similar to p.282 #51-72)

$$5\ln x = 15$$

17. Solve for x or t
(Similar to p.282 #51-72)

$$\ln x + \ln(x+4) = 0$$

18. Solve for x or t
(Similar to p.282 #51-72)

$$50(1.03)^{5t} = 800$$

19. \$8000 is invested in an account at interest rate r , compounded continuously. Find the time required for the amount to (a) double and (b) triple

(Similar to p.282 #73-76)

$$r = 0.025$$