Exponential and Logarithmic Functions

1. Solve for x
(similar to p.54 #7-21)

$$2^x = 16$$

2. Solve for x
(similar to p.54 #7-21)

$$3^{x-5} = 27$$

3. Solve for x
(similar to p.54 #7-21)

$$\left(\frac{1}{4}\right)^{5x-1} = 8$$

4. Solve for x
(similar to p.54 #7-21)

$$x^{\frac{3}{4}} = 27$$

5. Solve for x
(similar to p.54 #7-21)

$$x^{\frac{2}{3}} = 16$$

6. Solve for x
(similar to p.54 #7-21)

$$e^{x-2} = 3$$

7. Use the properties of logarithms to expand the logarithmic expression
(similar to p.56 #87-95)

$$\ln \frac{3x}{y}$$

8. Use the properties of logarithms to expand the logarithmic expression
(similar to p.56 #87-95)

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

9. Use the properties of logarithms to expand the logarithmic expression
(similar to p.56 #87-95)

$$\ln \sqrt[5]{x-7}$$

10. Use the properties of logarithms to expand the logarithmic expression
(similar to p.56 #87-95)

$$\ln \sqrt{\frac{x+3}{x^2}}$$

11. Write the expression as the logarithm of a single quantity
(similar to p.56 #97-103)

$$\ln x + \ln y$$

12. Write the expression as the logarithm of a single quantity (similar to p.56 #97-103)

$$5\ln x - 7\ln y + 3\ln z$$

13. Write the expression as the logarithm of a single quantity (similar to p.56 #97-103)

$$\frac{1}{5}\left[3\ln(x-2) + 5\ln(x-4)\right]$$

14. Write the expression as the logarithm of a single quantity (similar to p.56 #97-103)

$$\frac{3}{5}\left[\ln(x-1) - \ln(x+3) - \ln(x-7)\right]$$