

Number:

Textbook Section:

Title:

Recall:

Hence:

Use properties/laws of logarithms to find the exact value of each expression. Do not use a calculator.

1. $\log_2 2^{-13}$

2. $\log_6 9 + \log_6 4$

3. $5^{\log_5 6 + \log_5 7}$

For #4 and 5, suppose $\ln 2 = a$ and $\ln 3 = b$. Use properties/laws of logarithms to write each expression in terms of a and b .

4. $\ln 0.5$

5. $\ln \sqrt[5]{6}$

For #6-8, use properties of logarithms to expand each expression.

6. $\log\left(\frac{a^2}{b^4\sqrt{c}}\right)$

8. $\log_2\left(\frac{x^3\sqrt{x-1}}{3x+4}\right)$

7. $\ln\frac{3x^2}{(x+1)^{10}}$

For #9 and 10, use properties of logarithms to combine each expression. That is, write each one as a single logarithm.

9. $\ln(2) - \ln(7) + \ln(5) - \ln(3)$

10. $\frac{1}{2}[\log(x) + \log(y)] - \log(z)$

For #11 and 12, use a calculator and the change-of-base formula to find each logarithm to four decimal places.

11. $\log_{1.2}(13.7)$

12. $\log_{1/4} 3$

13. Solve the equation, accurate to four decimal places.

$$(0.56)^x = 8$$