

Logarithms

MathPlus 8th Grade Classwork 3

Solve each equation.

1) $\log_3 (x - 6) + \log_3 (x - 4) = 1$

2) $\log_2 9 + \log_2 (2x - 7) = 2$

3) $\ln (x + 5) - \ln (x + 3) = 3$

4) $\ln 8 + \ln (4x - 7) = 3$

5) $\log (x + 1) - \log x = \log 37$

6) $\log (x + 6) - \log 4 = 1$

Solve each equation. Round your answers to the nearest ten-thousandth.

7) $3.1e^{9n-8} + 1.4 = 61$

8) $-9e^{9r-6} - 6 = -18$

9) $8e^{6-10k} + 9 = 27$

Use a calculator to approximate each to the nearest thousandth.

10) $\log_7 13$

11) $\log_3 4.2$

12) $\log_5 11$

Expand each logarithm.

13) $\log_6 (x^4 y^4)$

14) $\ln \sqrt[3]{x \cdot y \cdot z}$

15) $\log \left(\frac{x}{y^2} \right)^4$

Condense each expression to a single logarithm.

16) $\frac{\log u}{2} + \frac{\log v}{2} + \frac{\log w}{2} + \frac{\log x}{2}$

17) $\log_5 11 + \log_5 3 + \frac{\log_5 8}{3} + \frac{\log_5 7}{3}$

$$18) \ln v + 6 \ln w + \frac{\ln u}{3}$$

Solve each equation.

$$19) \log_3 (x + 7) + \log_3 5 = 2$$

$$20) \log_3 x + \log_3 (x + 13) = \log_3 30$$

$$21) \log_9 3x^2 + \log_9 3 = 1$$