

Advanced Algebra
Spring Semester Review: Part III

Evaluate each of the following logarithms.

1) $\log_2 32 =$

2) $\log_4 \left(\frac{1}{64} \right) =$

3) $\log_3 0 =$

4) $\log_5 5^3 =$

5) $\ln e^4 =$

Write each of the following in logarithmic form.

1) $5^2 = 25$

2) $10^{-3} = .001$

3) $3^{-2} = \frac{1}{9}$

4) $4^{-3} = \frac{1}{64}$

Write each of the following as a single logarithm.

1) $\log_2 8 + 3\log_2 x + 5\log_2 y$

2) $(4\log_3 x + 2\log_3 y) - (\log_3 9 + 2\log_3 z)$

3) $\ln x + \ln y - \ln z$

4) $\log_2 8 + \log_4 16 - \log_3 9$

Expand each of the following logarithms.

1) $\log_3 x^3 y^2 z^5$

2) $\log \frac{2x^2 y^6}{a^2 b^5}$

3) $\log_2 (x+4)^2 y^5$

4) $\log_5 \left(\frac{x^2}{y^4} \right)^3$

Solve each of the following equations.

1) $25^{2x} = 125$

2) $\log_2 4x = 5$

3) $\log(7x+1) = \log(x-2) + 1$

4) $\log(3x+1) = 2$

5) $\log 5 - \log 2x = 1$

6) $\ln x + \ln(x+1) = 2$