

Spring, 1999
Peterson

MATH 124.

Homework 9.

DUE: Friday, April 2, 1999.

P1. Solve for x algebraically in each case. Exact answers are necessary.

(1) $\log_7(2x - 3) = 2.$

(2) $\log_{27}(5x - 21) = \frac{2}{3}.$

(3) $\log_2(x - 5) + \log_2\left(\frac{2}{5}\right) = 3.$

(4) $\log_6(12 - x) + \log_6(x + 1) = 2.$

(5) $\log_5(7x + 1) - \log_5(x + 2) = 1.$

(6) $2\log_3(|x|) - \log_3(x + 4) = 2.$

(7) $5 \cdot 2^{1-3x} - 7 = 153.$

(8) $5 \cdot 3^{2x+1} - 1 = \frac{2}{3}.$

P2. Simplify the following. You should not need a calculator for any of these problems. Exact answers are necessary.

(1) $9^{\log_3(P)}.$

(2) $\log_3\left(\frac{1}{\sqrt[7]{9}}\right).$

(3) $\log(1000) - \ln(e^4) + \log_2(8\sqrt{2}).$

(4) $\log(175) + \log(3) - \log(42) + 3\log(2).$

(5) $\log_5(25^{2x-3}).$

(6) $\log_4\left(\frac{1}{2^{x-1}}\right).$

P3. Sketch graphs of each of the following. Include asymptotes and exact values of intercepts in your sketch.

(1) $y = 9 - 3^{x+3}.$

(2) $y = \log_2(x + 4) - 1.$

P4. Find $f^{-1}(x)$ in each case:

(1) $f(x) = 3 \cdot 2^{x+1} - 7.$

(2) $f(x) = \log_2(x - 3) + 7.$