Algebra 3 Assignment # 7

Properties of Logarithms

(1) Evaluate each of the following please.

(a) $7^{\log_7(6)}$

(b) $5^{\log_{25}(36)}$

(c) $4^{\log_8(27)} + 8^{\log_4(25)}$

(d) $e^{2\ln(8) - 3\ln(4)}$

(2) Solve for x please.

(a) $\log_3(2x + 1) = \log_3(3x - 6)$

(b) $\log_{10}\left(x^2 + 9x\right) = 1$

(c) $\log_5(x) = 4\log_5\left(\sqrt{3}\right)$

(d) $\log_9(x) = \frac{1}{2}\log_9(144) - \frac{1}{3}\log_9(8)$

(e) $\log_3(7) + \log_3(x - 2) = \log_3(6x)$

(f) $\ln(15) + \ln(14) - \ln(105) = \ln(x)$

(g) $\log_{10}(x - 1) + \log_{10}(x + 2) = \log_7(7)$

(h) $\log_3(x + 3) + \log_3(x - 3) = \log_3(16)$

(i) $\log_8(x + 1) - \log_8(x) = \log_8(6x + 2)$

(j) $\log_3(x + 3) + \log_3(4x - 1) = \log_3(12)$

(k) $\log_8\left(x^2 - x\right) - \log_8(2x - 5) = \frac{2}{3}$

(l) $125^x = 8^{\log_4(9)} - 3^{\log_9(4)}$

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Answers

(1) **(a)** 6 **(b)** 6

(c) 134 **(d)** 1

(2) **(a)** 7 **(b)** -10 , 1

(c) 9 **(d)** 6

(e) 14 **(f)** 2

(g) 3 **(h)** 5

(i) $\frac{1}{3}$ **(j)** 1

(k) 4 , 5 **(l)** $\frac{2}{3}$