

Logarithmic & Exponential Equations

1. Write the expressions as a single logarithm or a single exponent:

(a) $\frac{7^{2x}}{7^x}$

(b) $\log(x - 16) - \log(x - 1)$

(c) $3^{5x} \cdot 9^{x^2}$

(d) $\ln(x + 2) + \ln(x + 2)$

2. Find all x that satisfy:

(a) $2000e^{.05x} = 10,000$

(b) $\log(x - 16) = 2 - \log(x - 1)$

(c) $3^{5x}9^{x^2} = 27$

(d) $\log(x + 1) + \log(x - 1) = \log 1$

(e) $\frac{10}{1 + e^{-x}} = 2$

(f) $7^{\frac{x}{3} \ln 5} = 9$

(g) $\log_2(\log_3(x)) = 4$