4.5 Exponential and Logarithmic Equations

Exponential Equations

CLASSROOM EXAMPLE 1 Solving an Exponential Equation

Solve $8^x = 21$. Give the solution to the nearest thousandth.

CLASSROOM EXAMPLE 3 Solving Base e Exponential Equations

Solve each equation. Give solutions to the nearest thousandth.

(a) $e^x = 50$

(b) $e^{4x} \cdot e^{x-1} = 5e$

Logarithmic Equations

CLASSROOM EXAMPLE 5 Solving Logarithmic Equations

Solve each equation. Give exact values.

(a) $4\ln x = 36$ **(b)** $\log_3(x^3 - 5) = 1$

CLASSROOM EXAMPLE 7 Solving a Logarithmic Equation

Solve $\log_3\left[(4x+1)(x+1)\right] = 3$. Give exact value(s).

CLASSROOM EXAMPLE 8 Solving a Logarithmic Equation

Solve $\log_2(2x-5) + \log_2(x-3) = 3$. Give exact value(s).