HW: Pages 315-316: 7, 15, 19, 26, 31, 43, 55, 64, 73, 81, 87

Pages 315-316:

Skill Building

In Problems 5–32, solve each logarithmic equation. Express irrational solutions in exact form and as a decimal rounded to three decimal places.Verify your results using a graphing utility.

7. $\log_2 (5x) = 4$

15. $3 \log_2 (x - 1) + \log_2 4 = 5$

19. $\log(2x + 1) = 1 + \log(x - 2)$

26. $\ln (x + 1) - \ln x = 2$

31. $\log_a (x - 1) - \log_a (x + 6) = \log_a (x - 2) - \log_a (x + 3)$

In Problems 33–60, solve each exponential equation. Express irrational solutions in exact form and as a decimal rounded to three decimal places. Verify your results using a graphing utility.

43. $\left(\dfrac{3}{5}\right)^x = 7^{1-x}$

55. $25^x - 8 \cdot 5^x = -16$

In Problems 61–74, use a graphing utility to solve each equation. Express your answer rounded to two decimal places.

64. $e^{2x} = x + 2$

73. $e^{-x} = \ln x$

In Problems 75–86, solve each equation. Express irrational solutions in exact form and as a decimal rounded to three decimal places.

81. $\dfrac{e^x + e^{-x}}{2} = 1$

87. $f(x) = \log_2(x + 3)$ and $g(x) = \log_2(3x + 1)$.
    (a) Solve $f(x) = 3$. What point is on the graph of f?
    (b) Solve $g(x) = 4$. What point is on the graph of g?
    (c) Solve $f(x) = g(x)$. Do the graphs of f and g intersect?
       If so, where?
    (d) Solve $(f + g)(x) = 7$.
    (e) Solve $(f - g)(x) = 2$.