1. Section 2.4; Page 210; Problems: 2, 8, 14, 24, 30, 43, 44, 74, 82, 94

2. Section 2.5; Page 221; Problems: 12, 14, 18, 34, 39, 45, 51, 83, 73, 74

Problem 2.4.8 \(3^x = 4.6 \iff \log_3(4.6) = x\).

Problem 2.4.43 To find the domain of \(f(x) = \sqrt{\ln(x)}\) we first of all need the part under the square root to be nonnegative which means we need to know when the natural log function is nonnegative but the natural log function is always increasing and \(\ln(1) = 0\) so any \(x\) value greater than or equal to one will yield a nonnegative natural log so the domain of \(f\) is \(\{x | x \geq 1\}\).

Problem 2.4.74 \(\log_3(3x - 2) = 2 \iff 3^2 = 3x - 2 \iff 3x - 11 = 0 \iff 3x = 11 \iff x = 11/3\).

Problem 2.5.14 \(5^{\log_5(6)} + \log_5 7 = 5 \cdot 7 = 35\).

Problem 2.5.34 \(\log_2 \left( \frac{a}{b^2} \right) = \log_2 (a) - \log_2 (b^2) = \log_2 (a) - 2 \log_2 (b)\).

Problem 2.5.51 \(\ln \left( \frac{x}{x - 1} \right) + \ln \left( \frac{x + 1}{x} \right) - \ln (x^2 - 1) = \ln \left( \frac{x}{x - 1} \cdot \frac{x + 1}{x} \right) - \ln (x^2 - 1) = \ln \left( \frac{x + 1}{(x - 1)(x^2 - 1)} \right) = \ln \left( \frac{1}{(x - 1)^2} \right)\).