35. $\log x = -2 \quad \Leftrightarrow \quad x = 10^{-2} = 0.01$

37. $\log(3x+5) = 2 \quad \Leftrightarrow \quad 3x+5 = 10^2 = 100 \quad \Leftrightarrow \quad 3x = 95 \quad \Leftrightarrow \quad x = \frac{95}{3} \approx 31.6667$

39. $2 - \ln(3-x) = 0 \quad \Leftrightarrow \quad 2 = \ln(3-x) \quad \Leftrightarrow \quad e^2 = 3-x \quad \Leftrightarrow \quad x = 3 - e^2 \approx -4.3891$

41. $\log_2 3 + \log_2 x = \log_2 5 + \log_2(x-2) \quad \Leftrightarrow \quad \log_2(3x) = \log_2(5x-10) \quad \Leftrightarrow \quad 3x = 5x - 10$
$\Leftrightarrow \quad 2x = 10 \quad \Leftrightarrow \quad x = 5$

43. $\log x + \log(x-1) = \log(4x) \quad \Leftrightarrow \quad \log[x(x-1)] = \log(4x) \quad \Leftrightarrow \quad x^2 - x = 4x \quad \Leftrightarrow$
$x^2 - 5x = 0 \quad \Leftrightarrow \quad x(x-5) = 0 \quad \Rightarrow \quad x = 0$ or $x = 5$. So the *possible* solutions are $x = 0$ and $x = 5$. However, when $x = 0$, $\log x$ is undefined. Thus the only solution is $x = 5$.

45. $\log_5(x+1) - \log_5(x-1) = 2 \quad \Leftrightarrow \quad \log_5\left(\frac{x+1}{x-1}\right) = 2 \quad \Leftrightarrow \quad \frac{x+1}{x-1} = 5^2 \quad \Leftrightarrow$
$x + 1 = 25x - 25 \quad \Leftrightarrow \quad 24x = 26 \quad \Leftrightarrow \quad x = \frac{13}{12}$

47. $\log_9(x-5) + \log_9(x+3) = 1 \quad \Leftrightarrow \quad \log_9[(x-5)(x+3)] = 1 \quad \Leftrightarrow \quad (x-5)(x+3) = 9^1$
$\Leftrightarrow \quad x^2 - 2x - 24 = 0 \quad \Leftrightarrow \quad (x-6)(x+4) = 0 \quad \Rightarrow \quad x = 6$ or -4. However, $x = -4$ is inadmissible, so $x = 6$ is the only solution.