1. $5^x = 16 \quad \Leftrightarrow \quad \log 5^x = \log 16 \quad \Leftrightarrow \quad x \log 5 = \log 16 \quad \Leftrightarrow \quad x = \frac{\log 16}{\log 5} = 1.7227$

3. $2^{1-x} = 3 \quad \Leftrightarrow \quad \log 2^{1-x} = \log 3 \quad \Leftrightarrow \quad (1-x)\log 2 = \log 3 \quad \Leftrightarrow \quad 1 - x = \frac{\log 3}{\log 2} \quad \Leftrightarrow$
$x = 1 - \frac{\log 3}{\log 2} \approx -0.5850$

5. $3\,e^x = 10 \quad \Leftrightarrow \quad e^x = \frac{10}{3} \quad \Leftrightarrow \quad x = \ln\left(\frac{10}{3}\right) \approx 1.2040$

7. $e^{1-4x} = 2 \quad \Leftrightarrow \quad 1 - 4x = \ln 2 \quad \Leftrightarrow \quad -4x = -1 + \ln 2 \quad \Leftrightarrow \quad x = \frac{1-\ln 2}{4} = 0.0767$

9. $4 + 3^{5x} = 8 \quad \Leftrightarrow \quad 3^{5x} = 4 \quad \Leftrightarrow \quad \log 3^{5x} = \log 4 \quad \Leftrightarrow \quad 5x \log 3 = \log 4 \quad \Leftrightarrow \quad 5x = \frac{\log 4}{\log 3}$
$\Leftrightarrow \quad x = \frac{\log 4}{5 \log 3} \approx 0.2524$

11. $8^{0.4x} = 5 \quad \Leftrightarrow \quad \log 8^{0.4x} = \log 5 \quad \Leftrightarrow \quad 0.4x \log 8 = \log 5 \quad \Leftrightarrow \quad 0.4x = \frac{\log 5}{\log 8} \quad \Leftrightarrow$
$x = \frac{\log 5}{0.4 \log 8} \approx 1.9349$

13. $5^{-x/100} = 2 \quad \Leftrightarrow \quad \log 5^{-x/100} = \log 2 \quad \Leftrightarrow \quad -\frac{x}{100} \log 5 = \log 2 \quad \Leftrightarrow$
$x = -\frac{100 \log 2}{\log 5} \approx -43.0677$

15. $e^{2x+1} = 200 \quad \Leftrightarrow \quad 2x + 1 = \ln 200 \quad \Leftrightarrow \quad 2x = -1 + \ln 200 \quad \Leftrightarrow \quad x = \frac{-1+\ln 200}{2} \approx 2.1492$

17. $5^x = 4^{x+1} \quad \Leftrightarrow \quad \log 5^x = \log 4^{x+1} \quad \Leftrightarrow \quad x \log 5 = (x+1)\log 4 = x \log 4 + \log 4 \quad \Leftrightarrow$
$x \log 5 - x \log 4 = \log 4 \quad \Leftrightarrow \quad x(\log 5 - \log 4) = \log 4 \quad \Leftrightarrow \quad x = \frac{\log 4}{\log 5 - \log 4} \approx 6.2126$

19. $2^{3x+1} = 3^{x-2} \quad \Leftrightarrow \quad \log 2^{3x+1} = \log 3^{x-2} \quad \Leftrightarrow \quad (3x+1)\log 2 = (x-2)\log 3 \quad \Leftrightarrow$
$3x \log 2 + \log 2 = x \log 3 - 2 \log 3 \quad \Leftrightarrow \quad 3x \log 2 - x \log 3 = -\log 2 - 2 \log 3 \quad \Leftrightarrow$
$x(3 \log 2 - \log 3) = -(\log 2 + 2 \log 3) \quad \Leftrightarrow \quad s = -\frac{\log 2 + 2 \log 3}{3 \log 2 - \log 3} \approx -2.9469$

21. $\frac{50}{1 + e^{-x}} = 4 \quad \Leftrightarrow \quad 50 = 4 + 4e^{-x} \quad \Leftrightarrow \quad 46 = 4e^{-x} \quad \Leftrightarrow \quad 11.5 = e^{-x} \quad \Leftrightarrow \quad \ln 11.5 = -x$
$\Leftrightarrow \quad x = -\ln 11.5 \approx -2.4423$

23. $100(1.04)^{2t} = 300 \quad \Leftrightarrow \quad 1.04^{2t} = 3 \quad \Leftrightarrow \quad \log 1.04^{2t} = \log 3 \quad \Leftrightarrow \quad 2t \log 1.04 = \log 3 \quad \Leftrightarrow$
$t = \frac{\log 3}{2 \log 1.04} \approx 14.0055$