2. $10^{-x} = 2 \quad \Leftrightarrow \quad \log 10^{-x} = \log 2 \quad \Leftrightarrow \quad -x = \log 2 \quad \Leftrightarrow \quad x = -\log 2 \approx -0.3010$

4. $3^{2x-1} = 5 \quad \Leftrightarrow \quad \log 3^{2x-1} = \log 5 \quad \Leftrightarrow \quad (2x-1)\log 3 = \log 5 \quad \Leftrightarrow \quad 2x - 1 = \frac{\log 5}{\log 3} \quad \Leftrightarrow$
$2x = 1 + \frac{\log 5}{\log 3} \quad \Leftrightarrow \quad x = \frac{1}{2}\left(1 + \frac{\log 5}{\log 3}\right) \approx 1.2325$

6. $2\,e^{12x} = 17 \quad \Leftrightarrow \quad e^{12x} = \frac{17}{2} \quad \Leftrightarrow \quad 12x = \ln\left(\frac{17}{2}\right) \quad \Leftrightarrow \quad x = \frac{1}{12}\left[\ln\left(\frac{17}{2}\right)\right] \approx 0.1783$

8. $4(1 + 10^{5x}) = 9 \quad \Leftrightarrow \quad 1 + 10^{5x} = \frac{9}{4} \quad \Leftrightarrow \quad 10^{5x} = \frac{5}{4} \quad \Leftrightarrow \quad 5x = \log\left(\frac{5}{4}\right) \quad \Leftrightarrow$
$x = \frac{1}{5}[\log 5 - \log 4] \approx 0.0194.$

10. $2^{3x} = 34 \quad \Leftrightarrow \quad \log 2^{3x} = \log 34 \quad \Leftrightarrow \quad 3x \log 2 = \log 34 \quad \Leftrightarrow \quad x = \frac{\log 34}{3 \log 2} \approx 1.6958$

12. $3^{x/14} = 0.1 \quad \Leftrightarrow \quad \log 3^{x/14} = \log 0.1 \quad \Leftrightarrow \quad \left(\frac{x}{14}\right)\log 3 = \log 0.1 \quad \Leftrightarrow$
$x = \frac{14 \log 0.1}{\log 3} \approx -29.3426$

14. $e^{3-5x} = 16 \quad \Leftrightarrow \quad 3 - 5x = \ln 16 \quad \Leftrightarrow \quad -5x = \ln 16 - 3 \quad \Leftrightarrow \quad x = -\frac{1}{5}(\ln 16 - 3) \approx 0.0455$

16. $\left(\frac{1}{4}\right)^x = 75 \quad \Leftrightarrow \quad 4^{-x} = 75 \quad \Leftrightarrow \quad \log 4^{-x} = \log 75 \quad \Leftrightarrow \quad (-x)(\log 4) = \log 75 \quad \Leftrightarrow$
$-x = \frac{\log 75}{\log 4} \quad \Leftrightarrow \quad x = -\frac{\log 75}{\log 4} \approx -3.1144$

18. $10^{1-x} = 6^x \quad \Leftrightarrow \quad \log 10^{1-x} = \log 6^x \quad \Leftrightarrow \quad 1 - x = x(\log 6) \quad \Leftrightarrow \quad 1 = x(\log 6) + x \quad \Leftrightarrow$
$1 = x(\log 6 + 1) \quad \Leftrightarrow \quad x = \frac{1}{\log 6 + 1} \approx 0.5624$

20. $7^{x/2} = 5^{1-x} \quad \Leftrightarrow \quad \log 7^{x/2} = \log 5^{1-x} \quad \Leftrightarrow \quad \left(\frac{x}{2}\right)\log 7 = (1-x)\log 5 \quad \Leftrightarrow$
$\left(\frac{x}{2}\right)\log 7 = \log 5 - x \log 5 \quad \Leftrightarrow \quad \left(\frac{x}{2}\right)\log 7 + x \log 5 = \log 5 \quad \Leftrightarrow \quad x\left(\frac{1}{2}\log 7 + \log 5\right) = \log 5$
$\Leftrightarrow \quad x = \frac{\log 5}{\frac{1}{2}\log 7 + \log 5} \approx 0.6232$

22. $\frac{10}{1 + e^{-x}} = 2 \quad \Leftrightarrow \quad 10 = 2 + 2e^{-x} \quad \Leftrightarrow \quad 8 = 2e^{-x} \quad \Leftrightarrow \quad 4 = e^{-x} \quad \Leftrightarrow \quad \ln 4 = -x \quad \Leftrightarrow$
$x = -\ln 4 \approx -1.3863$

24. $(1.00625)^{12t} = 2 \quad \Leftrightarrow \quad \log 1.00625^{12t} = \log 2 \quad \Leftrightarrow \quad 12t \log 1.00625 = \log 2 \quad \Leftrightarrow$
$t = \frac{\log 2}{12 \log 1.00625} \approx 9.2708$