1. Solve $\log(2x) - \log(x - 3) = 1$.

2. Solve $2^{x+1} = 5^{1-2x}$.

3. Solve $3 \cdot 4^x + 4 \cdot 2^x - 8 = 0$.

4. Solve $\log_5 x + \log_3 x = 1$.

5. How many years will it take for an investment of $10,000 to grow to $25,000, if the investment compounds continuously at 6% per year?