Practice Problems for Math Success
Exponential and Logarithmic Equations

These **practice problems** are designed to help you **prepare for our course exams** and **assess your understanding** of the course material at the expected level. Aim to complete them **in class, during tutoring, office hours, or on your own**, and try to solve them **without notes or a calculator**, just like on the **actual exams**. Remember, **practice makes perfect**, so don't hesitate to **ask for help** if you get stuck.

1. Find the exact values of the solutions of the following equations.

   (a) $\log(2t - 9) \cdot \log(5t^2) = 0$

   (b) $-\log(8x + 12) + \log(2x + 6) = -\log(x)$

2. Find the exact values of the solutions of the following equations.

(a) $5.1(1.9)^{6x} = 3(4.2)^x$

(b) $\dfrac{5^{t+1}}{5 \cdot 7^{t-2}} = \dfrac{3}{4^{2-t}}$

3. Find the exact values of the solutions of the following equations.

(a) $\log(1 - t) = 1 - \log(4 - t)$

(b) $\log\left(\dfrac{10^{1004x} + 7}{10}\right) = 1$

4. Find the exact values of the solutions of the following equations.

(a) $9^x - 7 \cdot 3^x = -6$

(b) $\dfrac{\ln(8x) - 2\ln(2x)}{\ln(x)} = 1$