**Working with Logarithms** Name: _____

Seat # _____

1. Evaluate: $\log_2 100 - \log_2 32 - \log_2 50$

2. Solve for $x$: $\log_2(3x - 4) = 3$

3. Solve for $x$: $\log_3[\log_2(\log(x + 250))] = 0$

4. Solve for $x$: $\log_5(x + 1) - \log_5(x - 1) = 3$

5. Combine into a single logarithmic statement:
   $2\ln(x + 1) - 3\ln x - \ln(x^2 + 4)$

6. Solve for $x$ (in terms of $b$): $4 + 2\log_b(x - 4) = 10$

7. Given $\log_b A = -2$, $\log_b B = 5$, and $\log_b C = 12$
   Find the **exact** value of $\log_b \dfrac{A\sqrt{C}}{B^2}$

8. Given $\log_b A = -2$, $\log_b B = 5$, and $\log_b C = 12$,
   find the **exact** value of $\log_b \dfrac{C}{A^3 * B^2}$

9. Solve for $x$: $\ln x = log_5 x$

10. Find the domain of $y = \dfrac{x^2 - 1}{\ln(x - 5)}$