MATH 1A QUIZ 3

Name: __________________________

"So hold your head up high, it’s your time to shine. From the inside out it shows, you’re worth more than gold."

Problem 1. Circle True or False. (1pt each)

a. ⟨True or False⟩ \( \ln \left( \frac{x}{a} \right) = \frac{\ln x}{\ln a} \) for all \( x, a > 0 \)

b. ⟨True or False⟩ If \( f(x) \leq g(x) \leq h(x) \) and \( \lim_{x \to \infty} f(x) \neq \lim_{x \to \infty} h(x) \), then we can conclude that \( \lim_{x \to \infty} g(x) \) does not exist.

c. ⟨True or False⟩ If \( f(x) \leq g(x) \leq h(x) \) and \( \lim_{x \to \infty} g(x) \) does not exist, then we can conclude that \( \lim_{x \to \infty} f(x) \neq \lim_{x \to \infty} h(x) \).

Problem 2. Find \( x \): \( \log_x x^2 + \ln(x - 2) = 2 \) (4 pts)
Problem 3. Find \( \lim_{x \to \infty} e^{-x} \cos(\ln(x^2 + 5)) \). (3pts)