Name: _____

Section: 302 □   303 □

1. Simplify the given expression.

a. $t^{1/2}t^{-1/3}$ **b.** $(t^{1/2})^{-1/3}$ **c.** $\dfrac{t^{1/2}}{t^{-1/3}}$ **d.** $\ln(e^{x^2})$ **e.** $\ln(e \cdot x^2)$ **f.** $\ln\left(\dfrac{e}{x^2}\right)$

2. Find all real numbers x that satisfy the given equation.

a. $2^{3-x} = 4^x$ **b.** $10^{x^2-1} = 10^3$ **c.** $\log_2 x = 3$ **d.** $2 = e^{2x}$

3. Differentiate the given function and simplify your answer.

a. $f(x) = 2xe^{2x}$ **b.** $f(x) = x \ln x - x$ **c.** $f(x) = \ln(x^2 + 1)$ **d.** $f(x) = \ln(\dfrac{x+1}{x-1})$