1. (10 pts) Find $\frac{dy}{dx}$ using the Quotient Rule. Simplify your answer.

(a) $y = \dfrac{2x}{x^2 + 1}$ (b) $y = \dfrac{\sin x}{1 + \cos x}$

2. (10 pts) Find $\frac{dy}{dx}$ using the Chain Rule (or the Generalized Power Rule).

(a) $y = \sec(3x + 1)$ (b) $y = \sqrt{x \tan x}$