Based on derivatives of composed functions.

$$\frac{d}{dx}\frac{dy}{dx} = \frac{\dot{x}\ddot{y} - \dot{y}\ddot{x}}{\dot{x}^3}$$

Where $\dot{x} = \frac{dx}{dt}$, $\dot{y} = \frac{dy}{dt}$, and $\ddot{x} = \frac{d^2x}{dt^2}$.