

$$1. \nabla w = \langle g', g' \rangle \rightarrow \text{Slope} = \frac{g'}{g'}$$

$$w = C$$

$$\Rightarrow \frac{dw}{dt} = \frac{\partial w}{\partial x} \cancel{\frac{dx}{dt}} + \frac{\partial w}{\partial y} \cancel{\frac{dy}{dt}} \cancel{x}$$

$$= 0 \Rightarrow \frac{dy}{dx} = - \frac{\partial w / \partial x}{\partial w / \partial y}$$