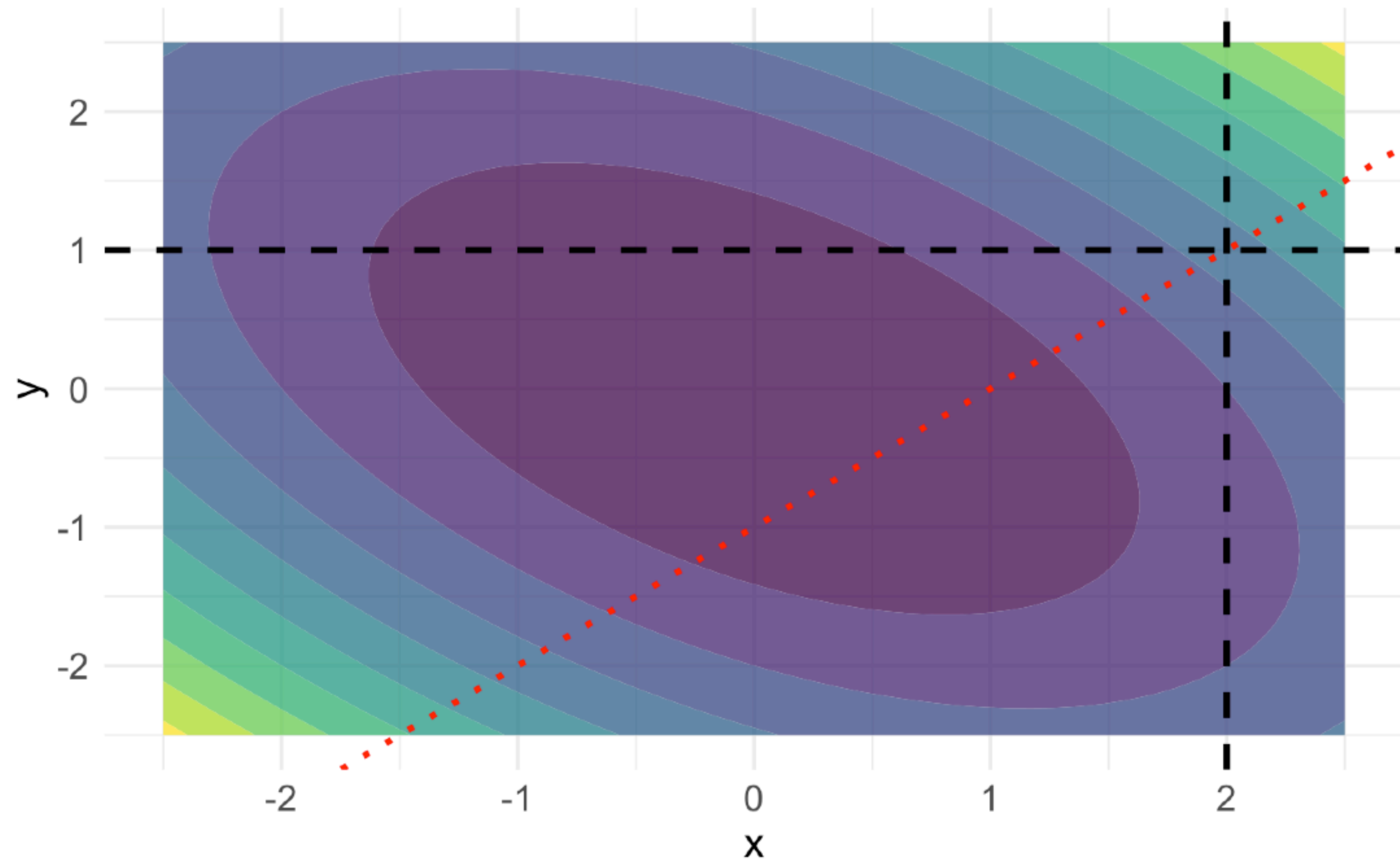# Gradient Descent

$$f(x, y) = x^2 + xy + y^2$$

Step size determined by Learning Rate ρ:

$$\begin{bmatrix} x_{new} \\ y_{new} \end{bmatrix} = \begin{bmatrix} x \\ y \end{bmatrix} - \rho \begin{bmatrix} \dfrac{\partial f}{\partial x} \\ \dfrac{\partial f}{\partial y} \end{bmatrix}$$

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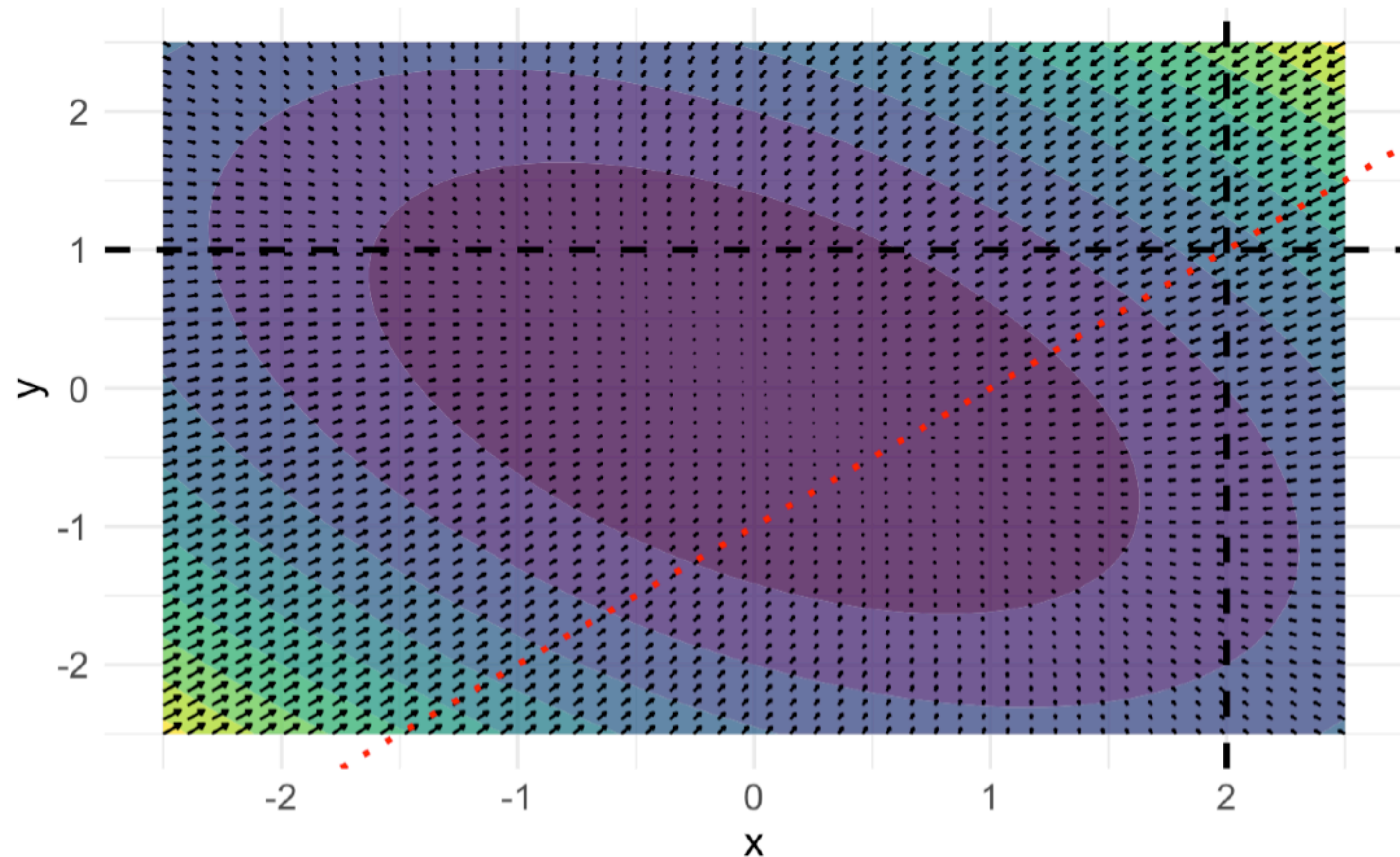

gradient tells us what adjustments we should make to each of our parameters