

$$\boxed{X}, Y$$

$$\boxed{f: X \rightarrow Y}$$

$$\boxed{x} \in X$$

$$Y$$

$$\{(x_i; y_i) \in \hat{f}\}$$

$$1) |Y| = c$$

$$c \in \mathbb{N} \quad \text{supervised}$$

$$2) |Y| = |\mathbb{R}|$$

$$\boxed{x_i}$$

$$f$$

$$\text{unsupervised}$$

$$f(x) = \boxed{\theta^T x}$$

$$\bar{x} = \begin{pmatrix} x \\ 1 \end{pmatrix}$$

$$f(x) = \theta_0 x + \theta_1$$

1) Возвращает θ -10 номер.

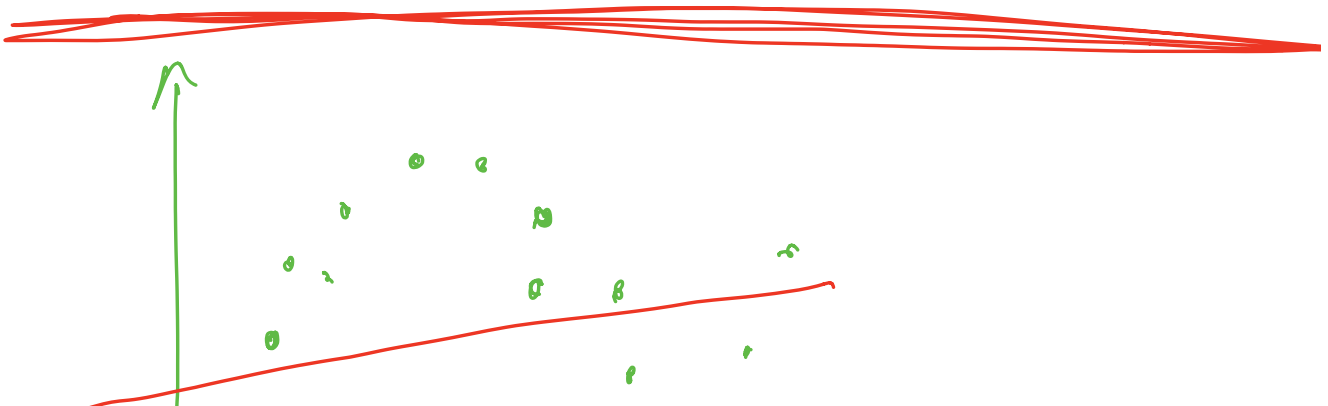
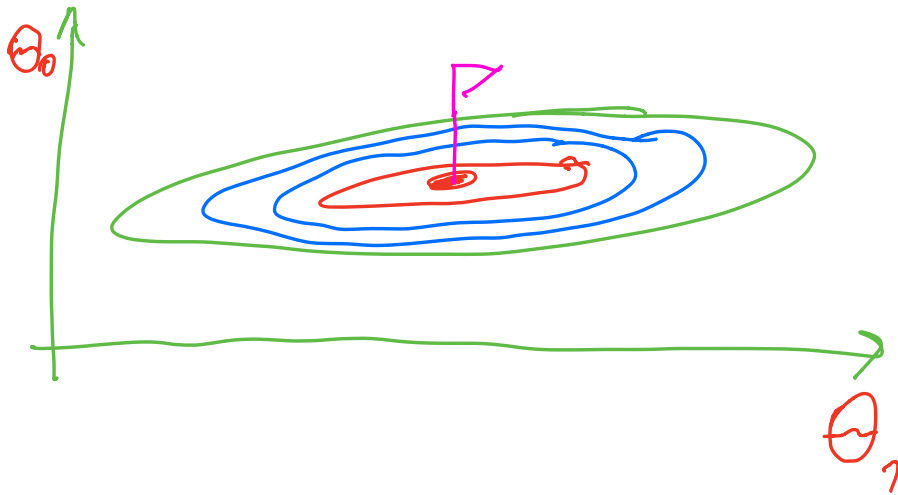
$$\arg \min_{\theta} \frac{\|y_i - f_{\theta}(x_i)\|_2}{L}$$

Пример. MSE L

2) Градиентный спуск.

1) $\theta_0 = z \quad z \sim N()$

2) $\theta_i = \theta_{i-1} - \lambda_i \nabla_{\theta} L(x, y, \theta_{i-1})$



1.

$$2) \quad f(x) = \psi(\theta^T x)$$

$$\psi(h) = \frac{1}{1 + e^{-h}}$$

$$f(x) = \theta^T x + \zeta$$

$$\zeta \sim N(0, 1)$$

$$\psi \in \mathcal{F}$$

$$\psi_1'(\theta_1^T x) + \psi_2'(\theta_2^T x) + \dots +$$

$$+ \psi_2'(\psi)$$

