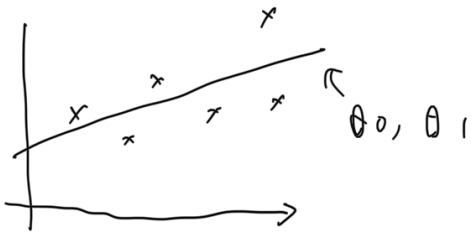
ML w1 Linear regression with one variable

How do we represent "h"?

$h_\theta(x) = \theta_0 + \theta_1 x$

Cost Function



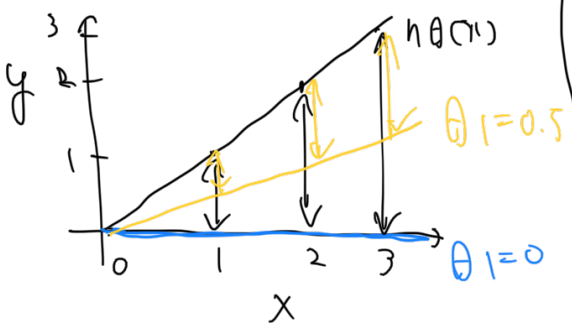
Idea: Choose θ_0, θ_1 so that $h_\theta(x)$ is close to y for training example.

$$\underset{\theta_0,\theta_1}{\text{minimize}} \quad \underbrace{\frac{1}{2m}\sum_{i=1}^{m}\left(h_\theta(x^{(i)}) - y^{(i)}\right)^2}$$

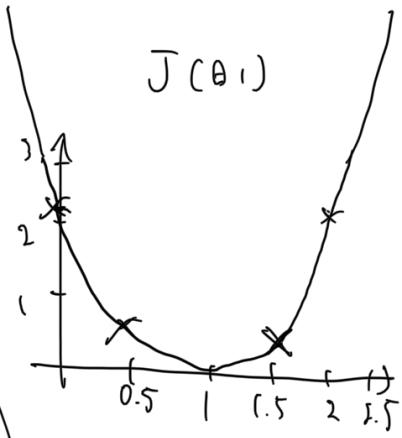
$$\text{minimize } J(\theta_0, \theta_1)$$

Cost function

$h_\theta(x)$ (for fixed θ_0)



$J(\theta_1)$



$$J(\theta_1)_{\theta_1=0} = \frac{1}{2m}\left(1^2 + 2^2 + 3^2\right) = \frac{1}{6}(14) \fallingdotseq 2.3$$

minimize $J(\theta_1)$