

House prices

1) Implement by hand equations of derivative using LaTeX (I will use similar format in LibreOffice/ODF, sorry)

$$f_x = \frac{\partial f}{\partial x} = \lim_{h \rightarrow 0} \frac{f(x+h, y) - f(x, y)}{h}$$
$$f_y = \frac{\partial f}{\partial y} = \lim_{h \rightarrow 0} \frac{f(x, y+h) - f(x, y)}{h}$$

why did I wrote them here?

2) Writing equations for housings:

$$dw \text{ linear} : \frac{\partial}{\partial W} [W \cdot x + b] = x$$

$$dx \text{ linear} : \frac{\partial}{\partial x} [W \cdot x + b] = W$$

$$db \text{ linear} : \frac{\partial}{\partial b} [W \cdot x + b] = 1$$

3) Cost function

We will use mean squared error cost function:

$$J(\theta_0, \theta_1) = L_{MSE} = \frac{1}{N} \cdot \sum_{i=0}^N (h_{\theta}(x_i) - y_i)^2$$

where $h_{\theta}(x_i) = \theta_0 + \theta_1 \cdot x_i$ (is our model)

We need to minimize cost function's result.

4) Gradient descent

$$\theta_0 := \theta_0 - \alpha \cdot \frac{\partial}{\partial \theta_0} J(\theta_0, \theta_1)$$

$$b := b - \alpha \cdot \frac{\partial}{\partial b} J(b, W)$$

$$\theta_1 := \theta_1 - \alpha \cdot \frac{\partial}{\partial \theta_1} J(\theta_0, \theta_1)$$

$$W := W - \alpha \cdot \frac{\partial}{\partial W} J(b, W)$$

Sorry, I still don't get how to write the rest. I have watched tons of Khan Academy videos on youtube regarding derivatives. I have watched lessons on Coursera regarding Machine Learning, Cost function, Gradient Descent... All the different notations of the same things drive me crazy.