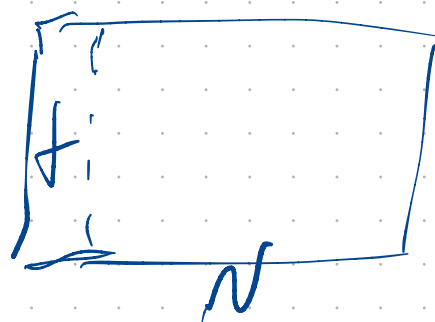
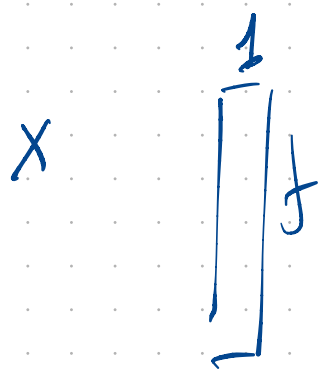
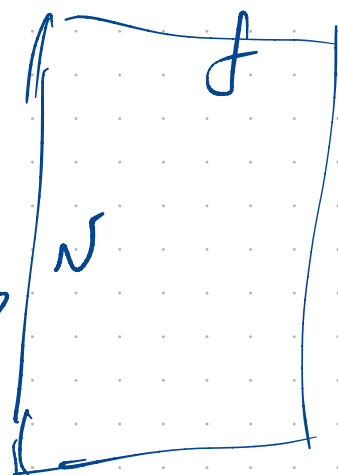




$$\mu = \theta^T x^T$$

$$x: N_b \times f$$



$$x^T: f \times N_b$$

$$\theta: f \times 1$$

$$\mu = \theta^T \cdot x^T$$

$$\theta^T: 1 \times f$$

$$\mu = \theta^T \cdot x^T: (1 \times f) \cdot (f \times N_b) = (1 \times N_b)$$



$$\mu = (\Theta^T X^T)^T = [X \cdot \Theta]$$

$$\Theta^T: 1 \times f$$

$$X^T: f \times N$$

$$\mu: N \times 1$$

$$y: N \times 1$$

$$L = \sum (m - y)^2$$

$$L = \underbrace{(m - y)^T}_{1 \times N} \odot \underbrace{(m - y)}_{N \times 1}$$

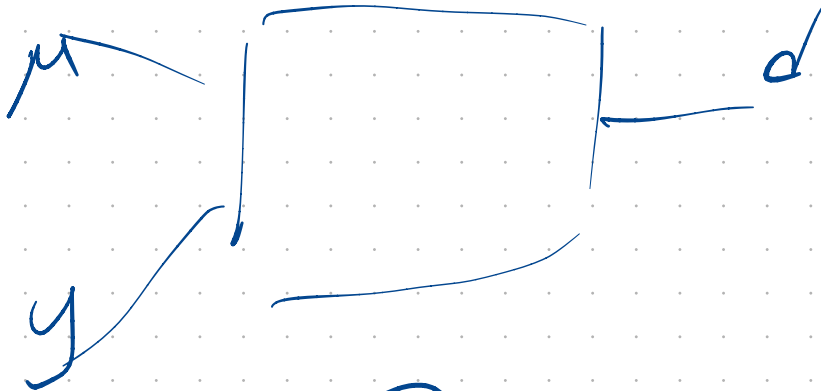
$$\frac{\frac{\partial \mu}{\partial x}}{\Theta}$$

$$\frac{\frac{\partial \mu}{\partial \Theta}}{x}$$

$$\frac{\partial L}{\partial \Theta} :$$

```
class linear():  
    def __init__(self):  
        self.theta = None  
  
    def forward(self, x):
```

$$d = \mu - y$$



$$\frac{\partial d}{\partial y} = -\frac{1}{1}$$

$$\frac{\partial d}{\partial \mu} = 1$$