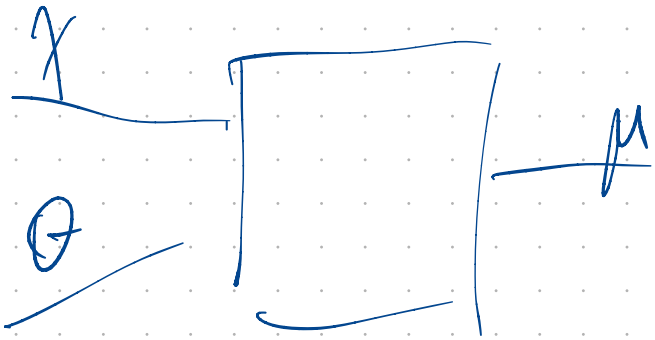
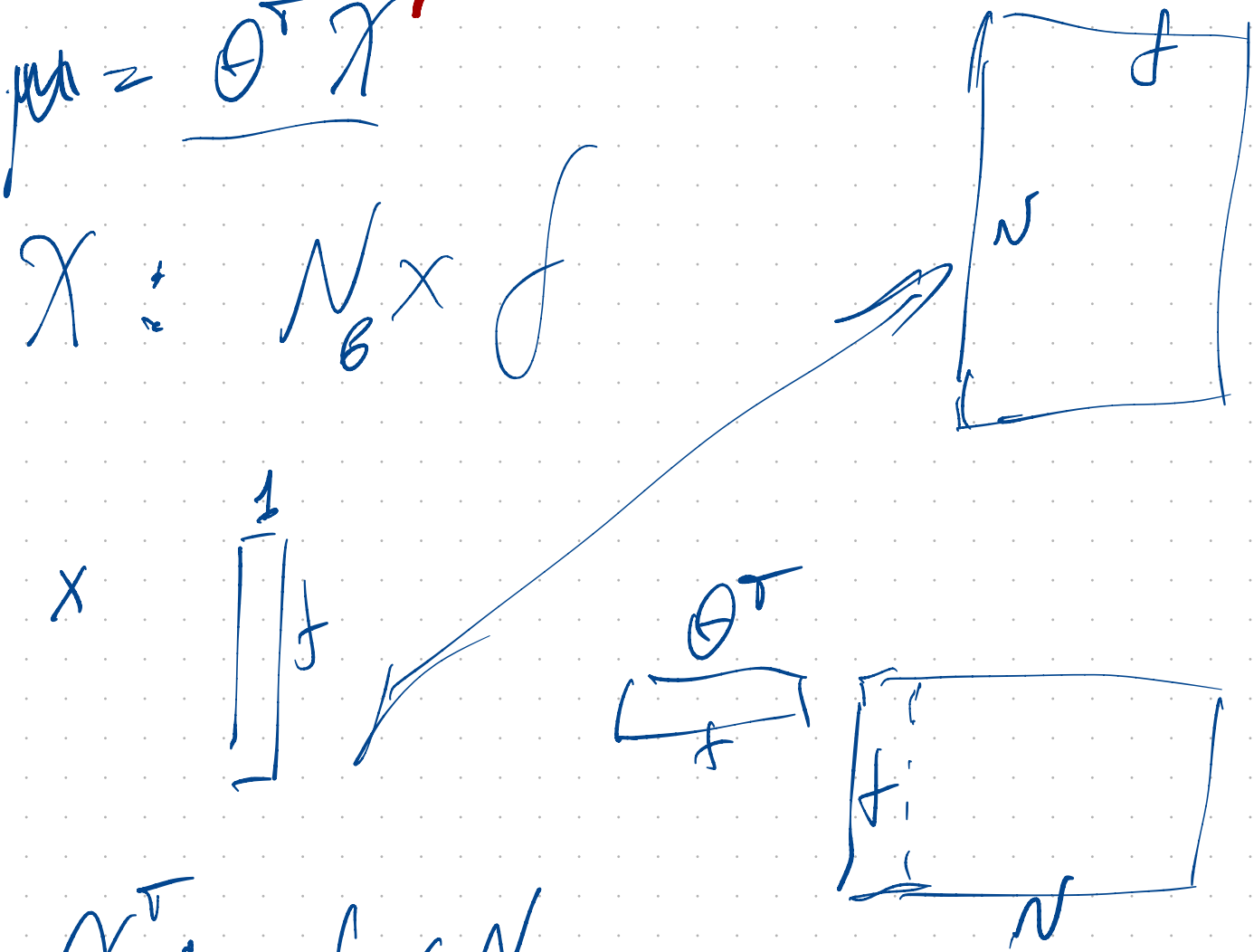
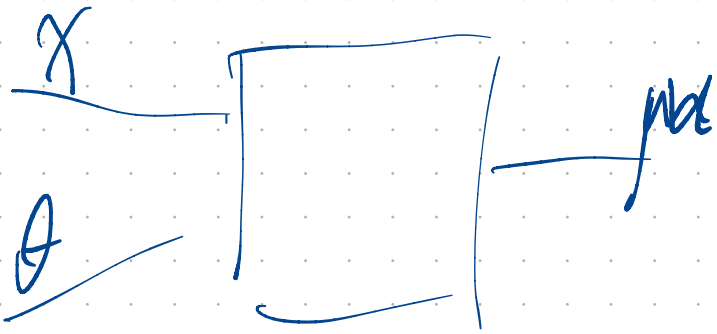


$$\mu = \theta^T X^T$$





$$\mu = (\theta^T X^T)^T = X \cdot \theta$$

$\theta^T : 1 \times f$ $\quad$ $\mu : N \times 1$ $\quad$ $y : N \times 1$

$X^T : f \times N$

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

$$L = (\mu - y)^T \odot (\mu - y)$$

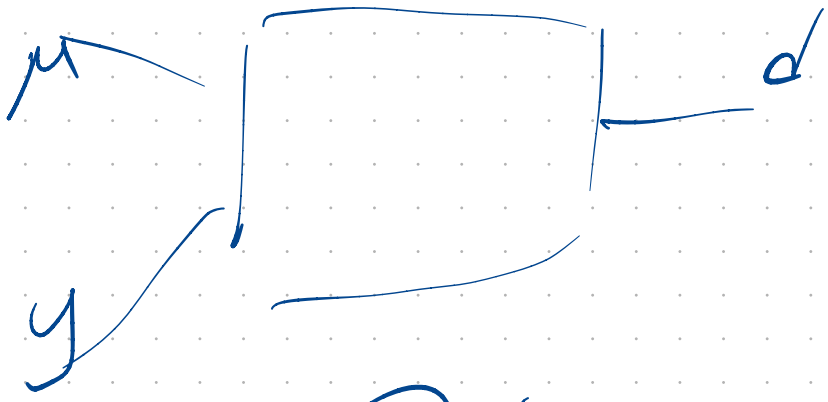
$1 \times N$ $\quad$ $N \times 1$

$$\frac{\partial \mu}{\partial X} \quad \frac{\partial \mu}{\partial \theta} \quad \frac{\partial L}{\partial \theta} :$$

θ $\quad$ X

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

$$d = \mu - y$$



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