X: 785X60000 y: 1X60000

m=60000 theta: 785X10

P_K_1 = $\downarrow$ 10 785 $\downarrow$ 785 = $\downarrow$ 10 $\Rightarrow$ P_K_1 = X [ ] = [ ... ]

P_norm = P_norm = [ ... ]

vectorized

f = - label log(●) - label $\rightsquigarrow$ log(●)

... = - log(△) - log(○) - log(●)...

= a variable.

$$m=1 \quad x^{(i)} \frac{\exp(\theta^{(k)T} x^{(i)})}{\sum_{j=1}^{K} \exp(\theta^{(j)T} x^{(i)})} - x^{(i)} \cdot 1\{y^{(i)}=k\}$$

label true, outputs 1

P_norm 10

[ ] . X [ △ ○ □ ⋮ ] $\rightsquigarrow$ 784 [ ... ] - X(:,i)

X(:,i) P_norm(i) 9 lable