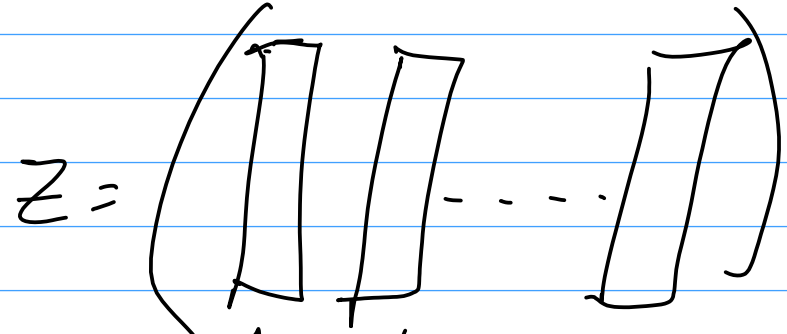
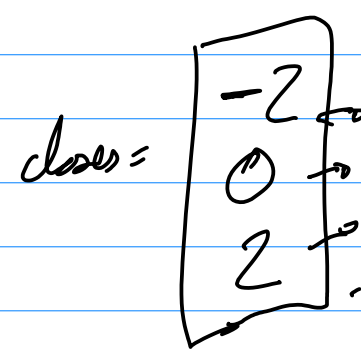
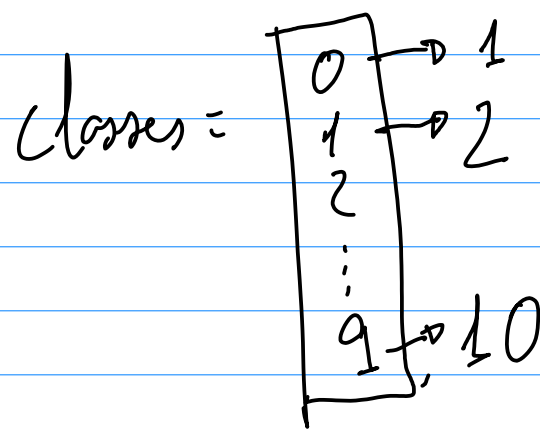


$$P_{CK} = \frac{1}{N_C} \left(\sum_n Z_{nK} \right) \rightarrow K$$

$\downarrow \quad \downarrow$
 $K=1 \quad K=2$
 $\rightarrow P_{C1} = \frac{1}{N_C} \cdot \sum_n Z_{n1}$



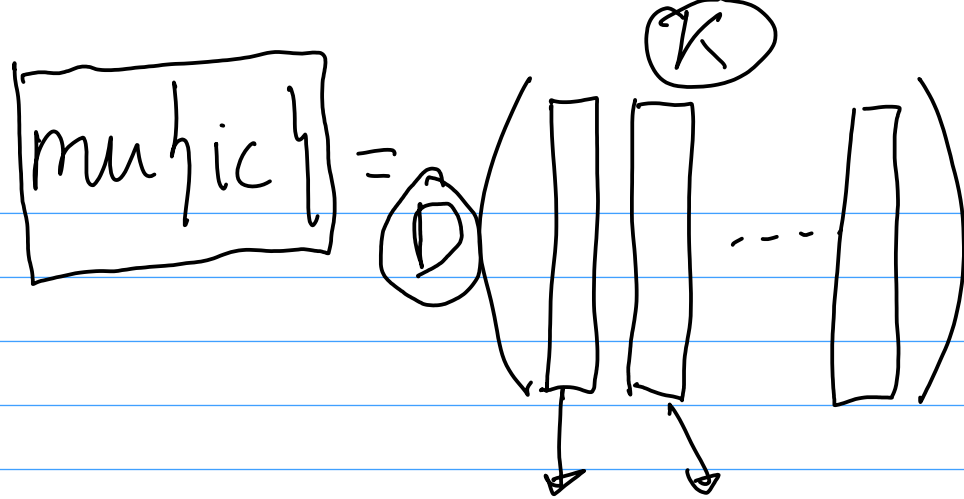
$\downarrow \quad \downarrow \quad \downarrow$
 $K=1 \quad K=2 \quad K=K$
 $\text{sum}(Z) = \left(\begin{array}{|c|} \hline \vdots \\ \hline \end{array} \begin{array}{|c|} \hline \vdots \\ \hline \end{array} \dots \begin{array}{|c|} \hline \vdots \\ \hline \end{array} \right) / N_C$



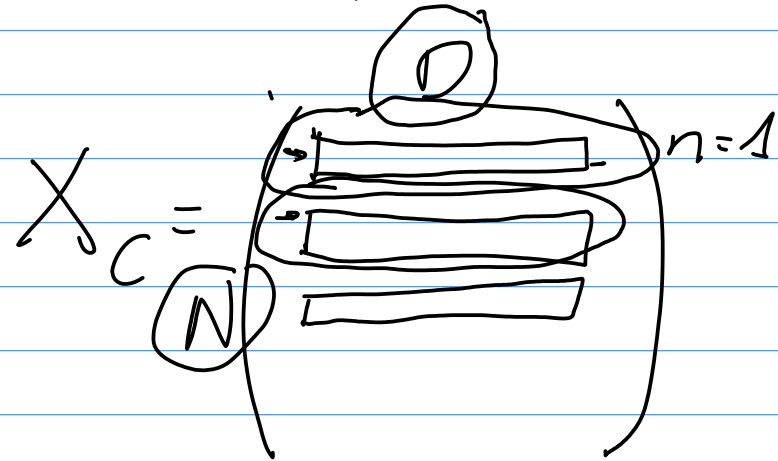
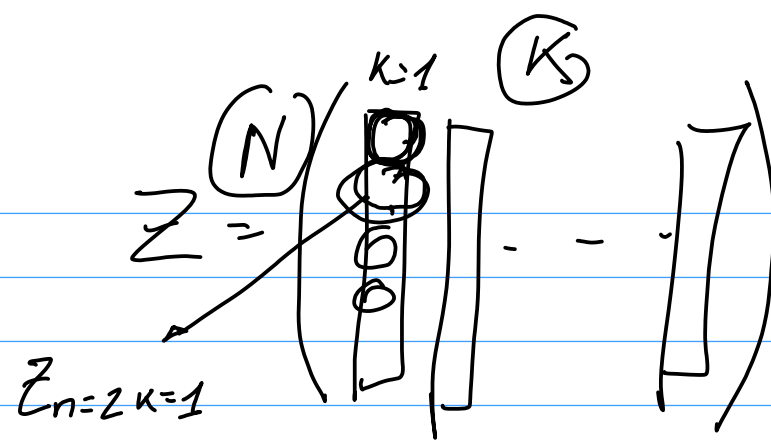
$P_{KGC} = \begin{array}{|c|} \hline \vdots \\ \hline \end{array} \xrightarrow{K} 1$

$ic = \text{find}(C = \text{classes})$

$C = 0 \rightarrow ic = 1$
 $C = 1 \rightarrow ic = 2$



$\mu_{C1} \quad \mu_{C2}$
 \downarrow
 $\text{multip}(1)$

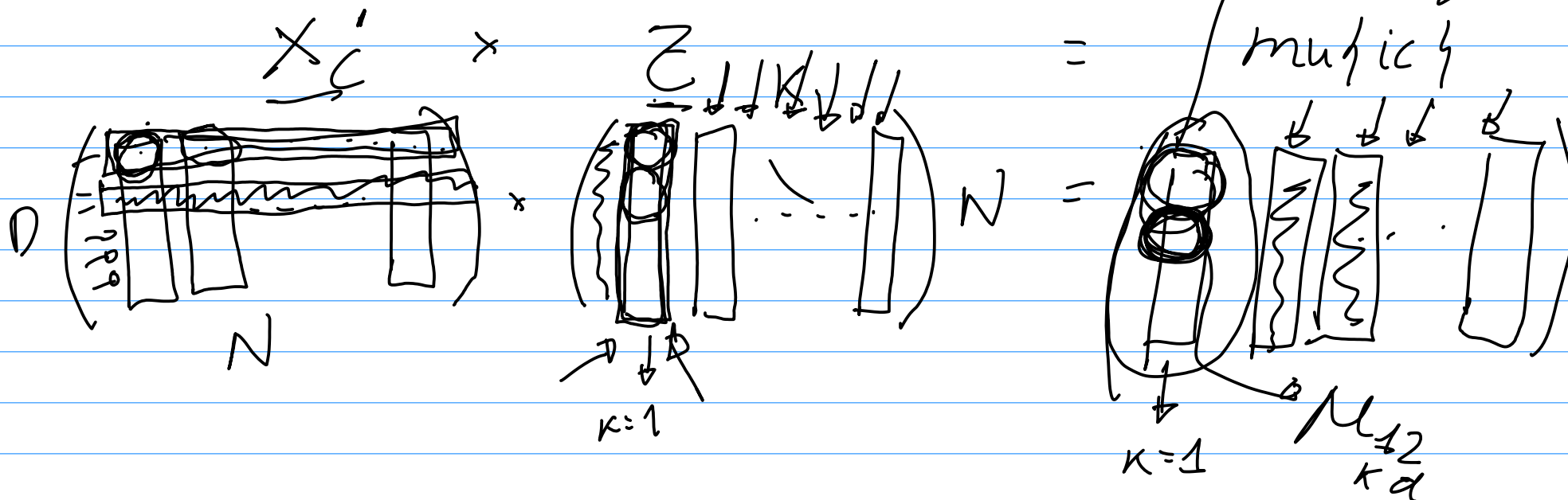


$$Z \otimes X_C = \boxed{\text{multip}}$$

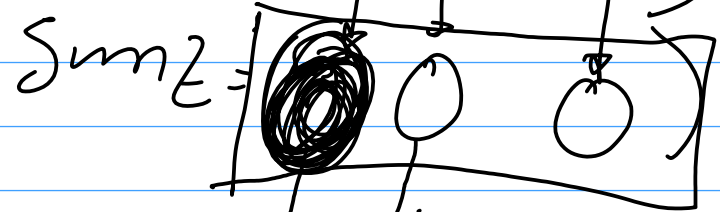
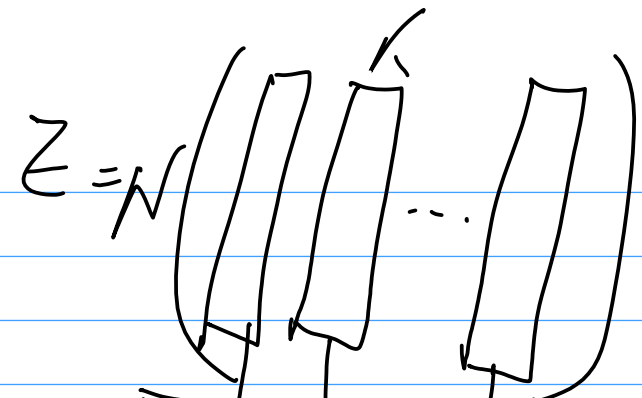
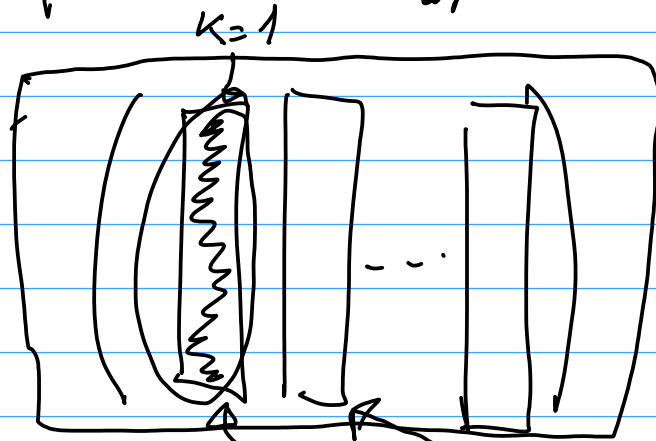
$$\begin{array}{l} Z \\ N \times K \\ X_c \\ N \times D \end{array} \begin{array}{l} \rightarrow \\ \nearrow \end{array}$$

$$\begin{array}{l} \text{multiplication} \\ D \times K \end{array}$$

$$\text{multiplication} = \begin{array}{c} \boxed{X_c' \cdot Z} \\ D \times K \quad D \times N \quad N \times K \end{array}$$

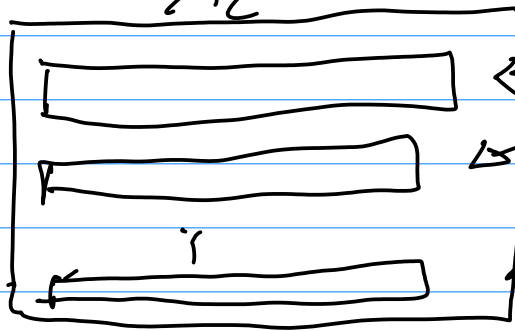


$$\text{multich} = X'_c \cdot Z / \text{sum} Z$$



$$A = X_c - \mu_c$$

$N \times D$ X_c

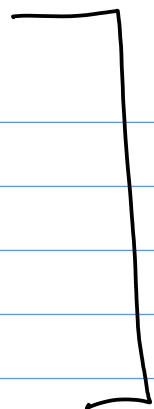
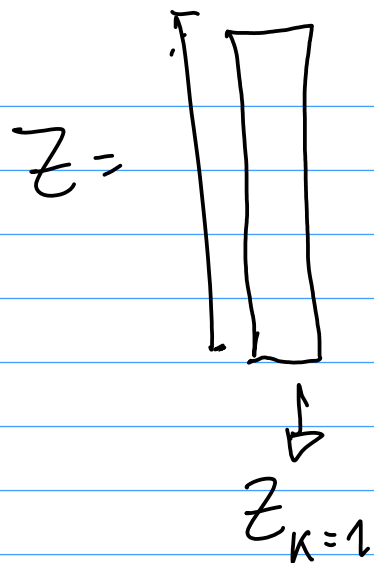


μ_c

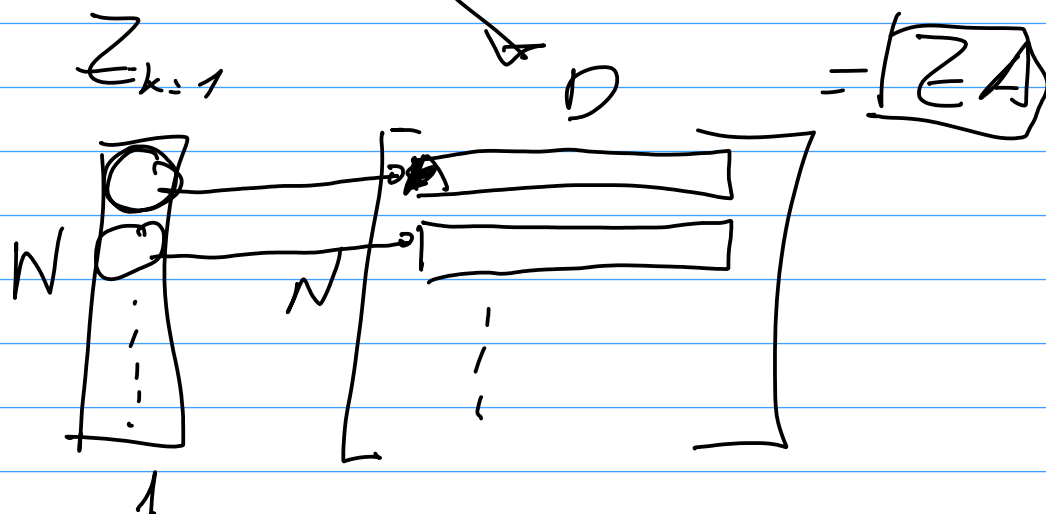


$$Z = [A^t \times A] / N_c$$

$D \times D$ $D \cdot N \times N \cdot D$ N_c



$$A = X_C - \mathcal{N}_{C_{k=1}}$$



$$Z_{C_{k=1}} = \underset{D \times N}{Z A'} \times \underset{N \times D}{A} / \text{sum}_Z(1)$$