

DATA Matrix

$$\begin{matrix} \text{case} \downarrow & \begin{pmatrix} x_{11} & x_{12} & \dots & x_{1p} \\ \vdots & \vdots & & \vdots \\ x_{n1} & \dots & \dots & x_{np} \end{pmatrix} & = & X \end{matrix}$$

variables

n cases $\rightarrow$ p variables

means

$\bar{x}_1 \dots \bar{x}_p$

"remove the means
by subtraction"

so Assume $\bar{x}_i = 0$