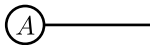$$A = \begin{pmatrix} a_1 \\ \vdots \\ a_m \end{pmatrix}$$

$$A = \begin{pmatrix} a_{11} & \dots & a_{1m} \\ \vdots & \ddots & \vdots \\ a_{m1} & \dots & a_{mm} \end{pmatrix}$$

$$A = \left(\begin{pmatrix} a_{211} & \dots & a_{21m} \\ a_{111} & \dots & a_{11m} \\ a_{2m1} & \dots & a_{2mm} \\ a_{1m1} & \dots & a_{1mm} \end{pmatrix} \right)$$