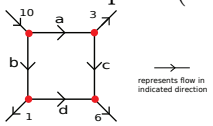
1.5 Pop quiz on Lecture 5 material

1. Let $A = \begin{pmatrix} 1 & 2 & 1 \\ -1 & -1 & 1 \\ 0 & 1 & 3 \end{pmatrix}$. Find (with proof) the inverse of A.

2. Let $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix}$. Find A^T.

3. Let $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$. Find $\mathrm{Tr}(A)$.

   At each node • require (sum of flows in) = (sum of flows out). Determine a, b, c and d in the network 

   Set up a linear system $Ax = b$ and solve it to determined the possible values of a, b, c, d in this network.

4. Let $A = \begin{pmatrix} 3 & -97 & \\ 13 & -21 & 35 \\ 300 & -100 & 200 \end{pmatrix}$.
   Find a matrix B such that BA is the same as A except that the third row is multipled by 6.

5. Let $A = \begin{pmatrix} 3 & -97 & \\ 13 & -21 & 35 \\ 300 & -100 & 200 \end{pmatrix}$.
   Find a matrix B such that BA is the same as A except that row 1 of BA is (row 1 of A) + 54 · (row 3 of A).

6. Let $A = \begin{pmatrix} 3 & -97 & \\ 13 & -21 & 35 \\ 300 & -100 & 200 \end{pmatrix}$.
   Find a matrix B such that BA is the same as A except that row 3 of A has moved to be row 2 of BA and row 2 of BA is (-5) · (row 2 of A) + (row 3 of A).