

Subject :  
Date :

$$A = \begin{vmatrix} 1 & 1 & 0 & 0 & 0 \\ -1 & 1 & 1 & 0 & 0 \\ 0 & -1 & 1 & 1 & 0 \\ 0 & 0 & -1 & 1 & 1 \\ 0 & 0 & 0 & -1 & 1 \end{vmatrix} \rightarrow \begin{vmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 2 & 1 & 0 & 0 \\ 0 & -1 & 1 & 1 & 0 \\ 0 & 0 & -1 & 1 & 1 \\ 0 & 0 & 0 & -1 & 1 \end{vmatrix} \rightarrow \begin{vmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 2 & 1 & 0 & 0 \\ 0 & 0 & 3/2 & 1 & 0 \\ 0 & 0 & -1 & 1 & 1 \\ 0 & 0 & 0 & -1 & 1 \end{vmatrix}$$

$$\rightarrow \begin{vmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 2 & 1 & 0 & 0 \\ 0 & 0 & 3/2 & 1 & 0 \\ 0 & 0 & 0 & 5/3 & 1 \\ 0 & 0 & 0 & -1 & 1 \end{vmatrix} \rightarrow \begin{vmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 2 & 1 & 0 & 0 \\ 0 & 0 & 3/2 & 1 & 0 \\ 0 & 0 & 0 & 5/3 & 1 \\ 0 & 0 & 0 & 0 & 8/5 \end{vmatrix}$$

$$\det(A) = 1 \times 2 \times \frac{3}{2} \times \frac{5}{3} \times \frac{8}{5} = \boxed{8}$$