

Determinants  
model questions based on  
focus area ①

1, Find value of  $x$  if  $\begin{vmatrix} 2 & 3 \\ 4 & 5 \end{vmatrix} = \begin{vmatrix} x & 3 \\ 2x & 5 \end{vmatrix}$

2, Using cofactors of elements of second column, evaluate  $\Delta = \begin{vmatrix} 5 & 3 & 8 \\ 2 & 0 & 1 \\ 1 & 2 & 3 \end{vmatrix}$

3, Find value of  $k$ , if  $A = \begin{pmatrix} 2 & k \\ 3 & 6 \end{pmatrix}$  is a singular matrix.

4,  $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ , show that  $A \cdot (\text{adj}A) = |A|I$

5, Show that the matrix  $A = \begin{pmatrix} 2 & 3 \\ 1 & 2 \end{pmatrix}$  satisfies the equation  $A^2 - 4A + I = 0$ .  
Using this equation find  $A^{-1}$ .

6, Solve system of linear equations using matrix method  
 $x - y + z = 4$ ,  $2x + y - 3z = 0$ ,  $x + y + z = 2$

7, If  $O(A) = 3 \times 3$  then  $|\text{adj}A| = \underline{\hspace{2cm}}$

8, Find  $\begin{vmatrix} \cos \theta & \sin \theta \\ -\sin \theta & \cos \theta \end{vmatrix}$

