

5.

$$\begin{vmatrix} 8 & -2 & 1 & 3 \\ -9 & -3 & 4 & -4 \\ 0 & 8 & 0 & -2 \\ 3 & 4 & -2 & 5 \end{vmatrix} \begin{vmatrix} 8 & -2 \\ -9 & -3 \\ 0 & 8 \\ 3 & 4 \end{vmatrix} = 8 \cdot (-3) \cdot 0 \cdot 5 + (-2) \cdot 4 \cdot (-2) \cdot 3$$

$$= 0 + 48 \quad 0 - 288 - 0 - 72$$

$$= 8 \cdot (-3) \cdot 0 \cdot 5 + (-2) \cdot 4 \cdot (-2) \cdot 3 + 1 \cdot (-4) \cdot 0 \cdot 4 - 3 \cdot 8 \cdot 4 \cdot 3 - 4 \cdot 0 \cdot (-4) \cdot 8 - (-2) \cdot (-2) \cdot (-9) \cdot (-2) = -168$$

(5)

$$\begin{vmatrix} 8 & -2 & 1 & 3 \\ -9 & -3 & 4 & -4 \\ 0 & 8 & 0 & -2 \\ 3 & 4 & -2 & 5 \end{vmatrix} \begin{vmatrix} 8 & -2 & 1 \\ -9 & -3 & 4 \\ 0 & 8 & 0 \\ 3 & 4 & -2 \end{vmatrix} =$$

$$= (0 + 48 + 0 - 216) - (288 + 0 + 72 + 0) = -530$$

$$\begin{array}{ccc|c} 1 & -2 & 0 & 3 \\ 7 & -3 & 4 & -4 \\ 8 & 0 & 2 & \\ 1 & -5 & 5 & \end{array}$$

$$\begin{array}{l} \text{I} \\ +7\text{I} \\ +8\text{I} \\ \text{II} \end{array} \begin{array}{c} 1 \quad -2 \quad 0 \quad 3 \\ 7 \quad -14 \quad 0 \quad 21 \\ -7 \quad 8 \quad 0 \quad 2 \\ \hline 0 \quad -6 \quad 0 \quad 23 \end{array} +$$

$$\begin{array}{l} \text{I} \\ -6\text{I} \\ \text{IV} \\ \text{IV} \end{array} \begin{array}{c} 1 \quad 1 \quad -9 \quad 4 \\ -6 \quad 12 \quad 0 \quad -18 \\ 6 \quad 1 \quad -5 \quad 5 \\ \hline 0 \quad 13 \quad -5 \quad -13 \end{array} +$$

$$\begin{array}{cccc|cccc} 1 & -2 & 0 & 3 & 1 & -2 & 0 & \\ 0 & -6 & 0 & 23 & 0 & -6 & 0 & \\ 0 & 8 & 0 & 2 & 0 & 8 & 0 & \\ 0 & 13 & -5 & -13 & 0 & 13 & -5 & \end{array}$$

$$= 0 + 0 + 0 + 0 - 0 - 0 - 0 - 0 = 0$$

$$5) \begin{array}{cccc|cccc} 1 & -2 & 0 & 3 & 1 & -2 & 0 & \\ -7 & -3 & 4 & -4 & -7 & -3 & 4 & \\ 0 & 8 & 0 & -2 & 0 & 8 & 0 & \\ 6 & 1 & -5 & 5 & 6 & 1 & -5 & \end{array}$$

$$\det = (0 + 936 + 0 + 840) - (576 + 0 + 140 + 0) = \underline{\underline{220}}$$