King Fahd University of Petroleum and Minerals

Prep-Year Math Program

Math 002 - Term 151

Recitation (9.3)

Question 1: If $\boldsymbol{A}=\begin{bmatrix} 2 & 1 & -1 & 3 \\ -2 & 0 & 2 & -5 \\ 0 & 3 & 6 & -9 \\ 0 & 1 & 8 & -6 \end{bmatrix}$, then find

I. The minor M_{23} and the cofactor C_{43}

II. $|A|$

Answer: (I): $M_{23}=-18 \qquad C_{43}=6$

Answer: (II): $|A|=18$

Question 2: If $\begin{vmatrix} 1 & 1 & 1 \\ x & y & z \\ 2 & 3 & 4 \end{vmatrix}=5$, find $\begin{vmatrix} 2 & 3 & 4 \\ x-4 & y-6 & z-8 \\ -2 & -2 & -2 \end{vmatrix}$

Answer: $\begin{vmatrix} 2 & 3 & 4 \\ x-4 & y-6 & z-8 \\ -2 & -2 & -2 \end{vmatrix}=10$

Question 3: If A is 3×3 and B is 4×4 invertible matrices, such that $|A|=-2$ and $|B|=3$, then find $2\left|\frac{1}{2}A\right|-\frac{1}{9}|3B^{2}|$.

Answer: –81.5

Question 4: The exact value of the determinant $\begin{vmatrix} \log_2 8 & 2 \\ \frac{1}{2} & \frac{1}{\log_{27} 3} \end{vmatrix}$ is

Answer: 8