Matrix Review

1. Given : $A=\begin{bmatrix}-3 & 5\\ 4 & 2\end{bmatrix}, B=\begin{bmatrix}8 & 3\\ -2 & -4\end{bmatrix}, C=\begin{bmatrix}-5 & -7\\ 2 & 2\end{bmatrix}$

   a) A + B – C
   b) 3A + 2B
   c) C^T
   d) A*B + C
   e) B^{-1}
   f) ∂ A

2. 2. Multiply the following:

   a) $\begin{bmatrix}4 & 1 & -4\\ -2 & -7 & 3\end{bmatrix}\begin{bmatrix}8 & 5\\ -2 & -1\\ 3 & 6\end{bmatrix}$

   b) $\begin{bmatrix}5 & 0 & 2\\ -2 & 7 & -3\\ 1 & -3 & 1\end{bmatrix}\begin{bmatrix}5 & 1 & 5\\ -2 & -4 & 3\\ 3 & 2 & -4\end{bmatrix}$

3. Determine the value of the determinant using the indicated method:

   a) diagonal $\begin{vmatrix}4 & 3 & 8\\ -6 & -5 & 4\\ 2 & -2 & -1\end{vmatrix}$

   b) expansion by minors $\begin{vmatrix}7 & -2 & 8\\ -3 & 1 & 4\\ 2 & 4 & -5\end{vmatrix}$

   c) properties of determinants $\begin{vmatrix}12 & -4 & -7\\ -8 & 6 & 11\\ 5 & 13 & -8\end{vmatrix}$

   d) solve for “x” $\begin{vmatrix}-2 & 4 & -1\\ 1 & -3 & x\\ 2 & 5 & 1\end{vmatrix}=30$

4. Solve:

   a) $3\begin{bmatrix}4 & 1\\ -2 & 7\end{bmatrix}+5\begin{bmatrix}a & c\\ b & d\end{bmatrix}=-4\begin{bmatrix}-2 & 6\\ 5 & -4\end{bmatrix}$

   d) $2\begin{bmatrix}4 & -2\\ 1 & 5\end{bmatrix}-4\begin{bmatrix}3 & 2\\ -x & 1\end{bmatrix}=3\begin{bmatrix}x & -4\\ -5 & 2\end{bmatrix}$

   b) 5x + 2y = 9
   -4x + 7y= -4

   c) 4x + 2y – 3x + = -6
   -2x + y + 4z = 2
   x + 2y – z = 8