**Practice Question for Lecture # 2**

**Question # 1**

Find the transpose of matrix $A=\begin{pmatrix}2 & 1\\ 3 & 1\end{pmatrix}$ ?

**Question # 2**

What is the order of given matrix $\begin{bmatrix}5 & 2 & 1 & 0\\ 1 & 1 & 1 & 1\end{bmatrix}$ ?

**Question # 3**

Write the following single column matrix as the sum of three column vectors**:**

$$\begin{pmatrix} x^2+x \\ 3x+1 \\ 9x^2+e^t \end{pmatrix}$$

**Question # 4**

Find the derivative of the matrix $X(t)=\begin{pmatrix} t^2 \\ \sin t \end{pmatrix}$.

**Question # 5**

Find, if possible, the multiplicative inverse of the matrix $A=\begin{pmatrix}3 & 4\\ 1 & 7\end{pmatrix}$

**Question # 6**

Find, if possible, the multiplicative inverse of the given matrices

1. $A=\begin{pmatrix}1 & 2 & 3\\ 0 & 4 & 5\\ 1 & 0 & 6\end{pmatrix}$

2. $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 5 & 7 & 9 \end{pmatrix}$

**Question # 7**

For the matrices $A = \begin{pmatrix} 3 & 5 \\ 1 & 1 \end{pmatrix}$ and $B = \begin{pmatrix} 0 & 1 \\ 4 & 1 \end{pmatrix}$, evaluate *BA* if possible?

**Question # 8**

For the matrices $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & 1 \\ 0 & 1 \\ 1 & 1 \end{pmatrix}$, evaluate *AB* if possible?

**Question # 9**

For the matrices $A = \begin{pmatrix} 1 & 6 \\ 3 & 7 \\ 5 & 9 \end{pmatrix}$ and $B = \begin{pmatrix} 5 & 0 \\ 3 & 0 \\ 1 & 0 \end{pmatrix}$, evaluate *AB* if possible?