

HOMework SET 3

MAT 217 · FALL 2008

You must show all work to get full credit. You can use a calculator to check your work.

Problem 1. Let $A = \begin{pmatrix} 1 & -2 & 3 \\ 0 & 4 & 5 \end{pmatrix}$ and $B = \begin{pmatrix} 4 & 6 & 8 \\ 1 & -3 & -7 \end{pmatrix}$. Find $A^t + B^t$, AB^t , and verify that $(A + B)^t = A^t + B^t$ and $(AB^t)^t = BA^t$.

Problem 2. Find x, y, z and t if $3 \begin{pmatrix} x & y \\ z & t \end{pmatrix} = \begin{pmatrix} x & 6 \\ -1 & 2t \end{pmatrix} + \begin{pmatrix} 4 & x+y \\ z+t & 3 \end{pmatrix}$.

Problem 3. Find the product of $(x \ y \ z) \cdot \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \cdot \begin{pmatrix} x \\ y \\ z \end{pmatrix}$ and $(x \ y) \cdot \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \cdot \begin{pmatrix} x \\ y \end{pmatrix}$

Problem 4. Find x, y, z , and t if $\begin{pmatrix} 3 & 0 \\ 1 & 2 \end{pmatrix} \cdot \begin{pmatrix} x & y \\ z & t \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$. Find matrix $\begin{pmatrix} x & y \\ z & t \end{pmatrix}$.