

MTH 261 Graded HW 7 Name _____**This assignment is due at 6:00 PM on Monday, May 22**

You may work on this assignment with your classmates or anybody else you please. You may get help from a tutor or even the instructor. What you may not do is simply copy somebody else's work – that completely obviates the purpose of the assignment. If you forget to complete the assignment before it is due, do not simply copy someone else's paper and turn that in ... that is not "working together," that is taking credit for somebody else's work. You should not be working on this in class right before it is due; you have a five days to get this done – it should be done well before ten minutes before it is due.

1. Let $\beta = \left\{ \begin{bmatrix} 1 \\ 3 \end{bmatrix}, \begin{bmatrix} 1 \\ 1 \end{bmatrix} \right\}$ and $\gamma = \left\{ \begin{bmatrix} 1 \\ 3 \end{bmatrix}, \begin{bmatrix} 3 \\ 0 \end{bmatrix} \right\}$. Determine $\underset{\gamma \leftarrow \beta}{P}$ and use that matrix to find $[\vec{x}]_\gamma$

where $[\vec{x}]_\beta = \begin{bmatrix} -7 \\ 9 \end{bmatrix}$. Show all relevant work, show an explicit check of your result, and make sure

that your conclusion is clear. (See example 9.3.)

2. Find – completely without the use of your calculator – a general formula for M^k where

$M = \begin{bmatrix} 4 & -1 \\ 2 & 1 \end{bmatrix}$. Obviously I will need to see all relevant work. (See example 10.6.)