MT-A315 Introduction to Linear Algebra Worksheet 1.3

Group: _____ Present: _____

1. Let's answer the question:

   Is the column vector $\begin{pmatrix} 7 \\ 6 \\ 6 \end{pmatrix}$ a linear combination of the vectors $\begin{pmatrix} -1 \\ 2 \\ -2 \end{pmatrix}$ and $\begin{pmatrix} 3 \\ -1 \\ 4 \end{pmatrix}$?

   First, write down the system that arises from the vector equation

   $$a \begin{pmatrix} -1 \\ 2 \\ -2 \end{pmatrix} + b \begin{pmatrix} 3 \\ -1 \\ 4 \end{pmatrix} = \begin{pmatrix} 7 \\ 6 \\ 6 \end{pmatrix}$$

   System:

   Now apply Gaussian elimination (as described in section 1.3) to solve your system (if possible)

   What is your conclusion? (Answer the question at the top!)