Quiz 8

1. (4 points) Determine whether the following matrices can be multiplied and if they can be multiplied as block matrices. If they can be multiplied as block matrices, compute $A \cdot B$ using their submatrices. If not, give a reason why the multiplication can't be performed.

$$A = \left[\begin{array}{ccc:ccc} 1 & 7 & 3 & 5 & -8 & 2 \\ 4 & 0 & -1 & 7 & 9 & -4 \\ \hdashline -2 & 5 & -3 & 1 & -3 & 0 \\ 6 & 2 & -2 & 1 & 0 & 7 \\ 7 & 1 & -9 & -8 & 3 & 14 \end{array}\right] \qquad B = \left[\begin{array}{ccc} 1 & 2 & -8 \\ 5 & 4 & -1 \\ \hdashline 7 & 5 & -2 \\ 0 & 1 & -4 \\ 5 & 1 & 7 \\ 9 & 8 & 10 \end{array}\right]$$

2. (review topic) Suppose you have the vectors: v_1, v_2, v_3, & v_4, and you know they are linearly independent. Determine whether the following vectors are linearly independent or linearly dependent?

   a. (3 points) $v_1 - v_2, 3(v_2 - v_3), 2(v_3 - v_4), v_4$

   b. (3 points) $v_1, 2v_1 - v_2, \ 2v_2 - 3v_3, -4v_1 + 3v_3$