Linear. Quiz 3. Name _____ Time_____
Show all work on this page for full and/or partial credit. Put a box around your final answers in each part.

$$A = \begin{bmatrix} 0 & 0 & 1 & 3 \\ 0 & 4 & 2 & 2 \\ 1 & 0 & 3 & -3 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 2 \\ 0 & 0 \\ -1 & -2 \\ 3 & 1 \end{bmatrix} \quad C = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 2 & 0 \\ 2 & 0 & 0 & 1 \end{bmatrix} \quad D = \begin{bmatrix} 1 & 2 \\ 0 & 0 \\ -1 & -2 \\ 3 & 6 \end{bmatrix}$$

Notice that $\det(C) = -6$.

(1) Which two matrices have column vectors that are linearly dependent?

(2) Which two matrices have row vectors that are linearly dependent?

(3) How many solutions $\mathbf{x}$ are there to the equation $A\mathbf{x} = \mathbf{0}$?

(4) Solve $A\mathbf{x} = \mathbf{0}$. Give your answer as a constant vector multiplied by a free variable.