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.

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

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.