Test 2 Part II: No Calculators allowed **Name:** _____
Math 341 - Winter 2014 Randall Paul **(50 minutes)**

1. (a) Change the matrix below into reduced row-echelon form. Clearly state what elementary row operations you are using at each step.

$$\begin{bmatrix} 2 & 0 & -3 & 1 \\ 2 & 5 & 4 & 7 \\ 1 & 0 & -2 & 1 \end{bmatrix}$$

(b) Solve the system

$$\begin{aligned} 2x \quad & \quad -3z = 1 \\ 2x \quad & +5y \quad +4z = 7 \\ x \quad & \quad -2z = 1 \end{aligned}$$

2. For what values of h are the vectors below **linearly independent**?

$$\begin{bmatrix} 1 \\ 2 \\ 4 \end{bmatrix}, \quad \begin{bmatrix} 2 \\ 3 \\ 5 \end{bmatrix}, \quad \begin{bmatrix} 3 \\ 1 \\ h \end{bmatrix}$$

3. (a) Write the vector form of the plane $x - 2y + 5z = 1$.

   (b) Write the vector form of the line of intersection between the plane above and the plane $y - z = -3$.