

Name: _____

Math 2250, Fall 2011, Quiz 1

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R. Bruner

Let $\mathbf{a}_1 = \begin{bmatrix} 2 \\ 1 \\ 1 \end{bmatrix}$, $\mathbf{a}_2 = \begin{bmatrix} 7 \\ 3 \\ 4 \end{bmatrix}$ and $\mathbf{b} = \begin{bmatrix} 5 \\ 1 \\ 4 \end{bmatrix}$.

1. Write a vector equation that is equivalent to the system of linear equations

$$2x_1 + 7x_2 = 5$$

$$x_1 + 3x_2 = 1$$

$$x_1 + 4x_2 = 4$$

2. Write the corresponding augmented matrix.

3. Express \mathbf{b} as a linear combination of \mathbf{a}_1 and \mathbf{a}_2 if it is possible.
