

MATH 54 SUMMER 2017, QUIZ 20

Express \mathbf{y} as a linear combination of \mathbf{u} , \mathbf{v} , and \mathbf{w} . Do not use row reduction. You may assume without checking that $\{\mathbf{u}, \mathbf{v}, \mathbf{w}\}$ is an orthogonal set. Make sure to show your work.

$$\mathbf{u} = \begin{bmatrix} 3 \\ 2 \\ 1 \\ 2 \end{bmatrix} \quad \mathbf{v} = \begin{bmatrix} 5 \\ 2 \\ -3 \\ -8 \end{bmatrix} \quad \mathbf{w} = \begin{bmatrix} 1 \\ -2 \\ 3 \\ -1 \end{bmatrix} \quad \mathbf{y} = \begin{bmatrix} -1 \\ -2 \\ 7 \\ 9 \end{bmatrix}$$