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**Exercise 1** Let  $W$  be the span of the vectors  $\mathbf{v}_1 = \begin{bmatrix} 1 \\ 2 \\ -1 \\ 1 \end{bmatrix}$   $\mathbf{v}_2 = \begin{bmatrix} 0 \\ 2 \\ 4 \\ -4 \end{bmatrix}$ .

In this exercise we will compute a basis for  $W^\perp$ .

1. Form a matrix  $A$  by using  $\mathbf{v}_1$  and  $\mathbf{v}_2$  as the rows of  $A$ . Then  $A$  is a  $2 \times 4$  matrix, and  $W^\perp$  is the

**Multiple Choice:**

- (i) Row
- (ii) Column
- (iii) Null

space of  $A$ .

2. A basis of  $\text{null}(W^\perp)$  :  $\left\{ \begin{bmatrix} 5 \\ \dots \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} -5 \\ \dots \\ 0 \\ 1 \end{bmatrix} \right\}$