Please PRINT your name _____

No calculators, cell phones, computers, notes, etc.

Circle your answer. | Make your work correct, complete and coherent. |

Please take a picture of your quiz (for your records) just before you turn the quiz in. I will e-mail your grade and my comments to you. I will keep your quiz.

The quiz is worth 5 points. The solutions will be posted on my website later today.

Quiz 4, February 23, 2022

Let $W = \left\{ \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} \middle| x_1 = x_2 \text{ or } x_1 = -x_2 \right\}$. Is W a vector space? Explain thoroughly.

Answer: This W is | not | a vector space. Indeed, W is not closed under addition because

$$v_1 = \begin{bmatrix} 2 \\ 2 \end{bmatrix} \quad \text{and} \quad v_2 = \begin{bmatrix} 2 \\ -2 \end{bmatrix}$$

are in W, but $v_1 + v_2$ is not in W.