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 8, April 18, 2022

Yes or No. Let v_1, v_2, v_3 be vectors in $\mathbb{R}^n$ and let $T : \mathbb{R}^n \to \mathbb{R}^m$ be a linear transformation. Suppose that $T(v_1)$, $T(v_2)$, $T(v_3)$ are linearly independent vectors in $\mathbb{R}^m$. Do the vectors v_1, v_2, v_3 have to be linearly independent? If yes, prove it. If no, give an example.

Answer: | YES! | Suppose $c_1 v_1 + c_2 v_2 + c_3 v_3 = 0$. Apply the linear transformation T and use the fact that T is a linear transformation to see that $c_1 T(v_1) + c_2 T(v_2) + c_3 T(v_3) = 0$. The vectors $T(v_1)$, $T(v_2)$, $T(v_3)$ are linearly independent; hence, $c_1 = c_2 = c_3 = 0$ and v_1, v_2, v_3 are linearly independent.