Homework 2.2.2.6 Let $f: \mathbb{R}^n \to \mathbb{R}^m$ and $f(0)=0$. Then f is a linear ~~transformation~~.

Always / Sometimes / Never

2.2.2.3

$$f\left(\begin{pmatrix} \chi_0 \\ \chi_1 \\ \chi_2 \end{pmatrix}\right) = \begin{pmatrix} \chi_0 \\ \chi_0 + \chi_1 \\ \chi_0 + \chi_1 + \chi_2 \end{pmatrix}$$

2.2.2.1

$$f\left(\begin{pmatrix} \chi \\ \psi \end{pmatrix}\right) = \begin{pmatrix} \chi \cdot \psi \\ \chi \end{pmatrix}$$

Not a linear transformation.