

Financial Mathematics

Basics of linear transformations

0022-1. Define $F : \mathbb{R}^2 \rightarrow \mathbb{R}$ by

$$F(x, y) = -2x - 3y + y^2$$

- Compute $F(1, 2)$.
- Compute $F(3, 5)$.
- Compute $F(4, 7)$.
- Is F linear? Why or why not?

0022-2. Let

$$M_1 := \begin{bmatrix} 6 & 0 & 0 & -9 & 1 \\ -7 & -3 & 4 & 0 & 0 \\ 0 & -1 & 0 & 2 & 0 \end{bmatrix}$$

Compute $L_{M_1}(2, 3, 4, 2, 3)$.