## 0.1 Matrix representation

### 0.1.1 Representing linear maps as matrices

We previously discsussed morphisms on vector spaces. We can write these as matrices.

Matrices represents transformations of vector spaces

### 0.1.2 Representing vectors as matrices

We can represent vectors as row or column matrices.

$v = \begin{bmatrix} a_1 & a_2 & ... & a_n \end{bmatrix}$

$v = \begin{bmatrix} a_1 \\ a_2 \\ ... \\ a_m \end{bmatrix}$