# 1 | **Matrix of a vector,** $\mathcal{M}(v)$ **def**

Given a vector $v \in V$ and a basis $v_1, \ldots, v_n$, the *matrix of* $v$ "with respect to this basis" is an n-by-1 matrix of the coefficinets. (Because every vector can be written as a linear combination of a basis).