

# Práctica 1

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1.  $\mathbf{R}^3$  of  $\mathbf{R} = \{(1,1), (1,2), (2,3), (3,4)\}$

$$\mathbf{R} = \begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix}, \mathbf{R}^3 = \mathbf{R} \times \mathbf{R} \times \mathbf{R} \rightarrow \mathbf{R}^3 = \begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix} \times \begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix} \times \begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix},$$

$$\mathbf{R}^3 = \begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} \times \begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{pmatrix}$$

El resultado es:  $\mathbf{R}^3 = \{(1,1), (1,2), (1,3), (1,4)\}$  y podemos comprobarlo con el script *powerrelation.m* :

```
octave:8> powerrelation({'1','1'},['1','2'],['2','3'],['3','4'],3)
ans =
{
    [1,1] = 11
    [1,2] = 12
    [1,3] = 13
    [1,4] = 14
}
```