



$$x_1 = \frac{x_3}{1} + \frac{x_4}{2}$$

$$x_2 = \frac{x_1}{3}$$

$$x_3 = \frac{x_1}{3} + \frac{x_4}{2} + \frac{x_2}{2}$$

linear equation

$$x_4 = \frac{x_1}{3} + \frac{x_2}{2}$$

⇓ matrix

$$Ax = \begin{bmatrix} 0 & 0 & 1 & 1/2 \\ 1/3 & 0 & 0 & 0 \\ 1/3 & 1/2 & 0 & 1/2 \\ 1/3 & 1/2 & 0 & 0 \end{bmatrix}$$

sparse

we seek an eigen vector with eigen of 1

$$x_1 = 0.387$$

$$x_2 = 0.129$$

$$x_3 = 0.290$$

$$x_4 = 0.194$$

$$\sum x = 1 \Rightarrow$$