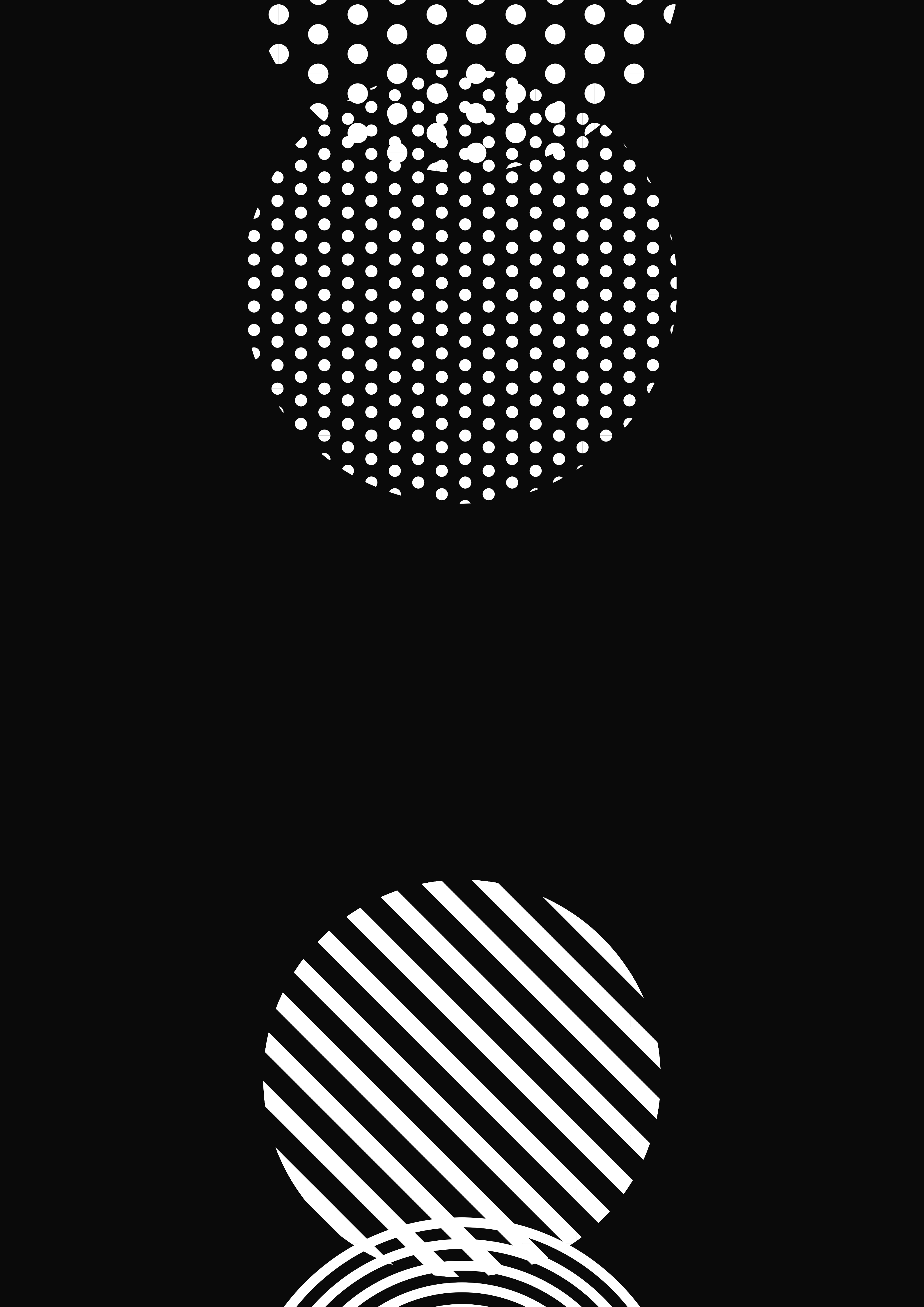

6, 14, 15, 16

Conditionnement de A

$cond(A) = \|A\| \cdot \|A^{-1}\|$

$\begin{pmatrix} -\lambda & 1 \\ 0 & \varepsilon - \lambda \end{pmatrix}$ $A - \lambda I = \begin{pmatrix} 0 & 1 \\ 0 & \varepsilon \end{pmatrix} - \begin{pmatrix} \lambda & 0 \\ 0 & \lambda \end{pmatrix}$

$\det^{\uparrow} = -\lambda\varepsilon + \lambda^2 = 0$ $\lambda(\lambda - \varepsilon) = 0 \Leftrightarrow \lambda = 0, \lambda = \varepsilon$

$Ker \begin{pmatrix} 0 & 1 \\ 0 & \varepsilon \end{pmatrix} =$ $\begin{matrix} x_2 \\ \varepsilon x_2 \end{matrix} = 0 \Leftrightarrow \begin{matrix} x_2 = 0 \\ x_1 \in \mathbb{R} \end{matrix}$ $\begin{pmatrix} x_1 \\ 0 \end{pmatrix}$

$Ker \begin{pmatrix} -\varepsilon & 1 \\ 0 & 0 \end{pmatrix}$ $\varepsilon x_1 = x_2$ $\begin{pmatrix} x_1 \\ \varepsilon x_1 \end{pmatrix}$ $\begin{pmatrix} 1 \\ \varepsilon \end{pmatrix}$

$\begin{pmatrix} 1 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 \\ \varepsilon \end{pmatrix}$ → v.p.

$P = \begin{pmatrix} 1 & 1 \\ 0 & \varepsilon \end{pmatrix}$ $P^{-1} = \begin{pmatrix} 1 & -\varepsilon^{-1} \\ 0 & \varepsilon^{-1} \end{pmatrix}$

$\|P\|_\infty = 2$ $\|P^{-1}\|_\infty = \varepsilon^{-1}$

$cond_{\|\cdot\|_\infty}(P) = \varepsilon^{-1}$