

$B = \begin{bmatrix} 7 & 1 \\ 0 & 7 \end{bmatrix}$. Si B est diagonalisable, alors $\exists P \in GL_2(\mathbb{R})$,

$$B' : P^{-1} B P = \begin{bmatrix} \lambda_1 & 0 \\ 0 & \lambda_2 \end{bmatrix}. \quad \text{Or } \begin{cases} \text{tr}(B) = 14 = \text{tr}(B') = \lambda_1 + \lambda_2 \\ \det(B) = 49 = \det(B') = \lambda_1 \times \lambda_2 \end{cases}$$

$$\text{D'où } \lambda_1 = \lambda_2 = 7. \quad \text{D'où } \underbrace{P P^{-1} B P P^{-1}}_{B} \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} P^{-1} = 7 I_2 P^{-1}$$

$$\boxed{B = 7 I_2}$$

C'est absurde