2

$$p(\lambda) = \begin{vmatrix} (-4-\lambda) & 3 \\ 3 & (4-\lambda) \end{vmatrix} = -(16-\lambda^2) - 9$$

$$= \lambda^2 - 25 = (\lambda+5)(\lambda-5)$$

autovalores ± 5

$\lambda = 5$

$$\begin{bmatrix} -4 & 3 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} x \\ 1 \end{bmatrix} = \begin{bmatrix} -4x+3 \\ 3x+4 \end{bmatrix} = \begin{bmatrix} 5x \\ 5 \end{bmatrix}$$

$3x+4 = 5$

$3x = 1$

$x = 1/3$

para $\lambda = -5$:

$3x+4 = -5$

$3x = -9$

$x = -3$

$$\begin{bmatrix} 1/3 \\ 1 \end{bmatrix} \text{ ou } \begin{bmatrix} 1 \\ 3 \end{bmatrix} \longleftrightarrow \text{perpendiculares!} \longleftrightarrow \begin{bmatrix} -3 \\ 1 \end{bmatrix}$$

$$\|(1,3)\| = \|(-3,1)\| = \sqrt{10}$$

$$\frac{1}{\sqrt{10}} \begin{bmatrix} 1 & -3 \\ 3 & 1 \end{bmatrix} = Q \text{ é matriz ortogonal}$$

então $Q^t Q = Q Q^t = I$, $Q^t = Q^{-1}$.