

Problem Q2.2. A full QR factorization of A just consists of a 3×3 matrix Q and a 3×2 matrix R :

$$QR = \begin{bmatrix} -\frac{1}{\sqrt{2}} & \sqrt{2/3} & 0 \\ -\frac{1}{\sqrt{2}} & \sqrt{2/3} & 0 \\ 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} -\sqrt{2} & -2/\sqrt{2} \\ 0 & \sqrt{3/2} \\ 0 & 0 \end{bmatrix}.$$