[Note: The goal of this exercise is to show you how you can get the thin SVD ‘by hand’]

1. Consider

\[ A = \begin{pmatrix} 1 & -1 & 0 & 2 \\ 0 & -1 & 1 & 2 \end{pmatrix} \]

(a) What are the nonzero singular values of \( A \)?
(b) Find the thin SVD of \( A \) [Hint: do calculations ‘by hand’ - Matlab to verify results only]