

**Solution** (#695) Consider the  $m \times n$  matrix  $A$  with rows  $\mathbf{v}_1, \mathbf{v}_2, \dots, \mathbf{v}_m$ . Then  $\text{RRE}(A)$  can have at most  $n$  columns with leading 1s. As  $m > n$  then not every row can have a leading 1 and so at least one of the rows is a zero row. By the test for independence (Corollary 3.90) this means that the rows of  $A$  are linearly dependent.