MATH 54 – SOLUTION TO 4.3.21

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Remember that you have to justify the True/False questions on the homework! You don’t have to write an essay, just briefly explain why a statement is true or false.

(a) FALSE (consider \( V = \mathbb{R}^2 \), then \( \left\{ \begin{bmatrix} 1 \\ 1 \end{bmatrix} \right\} \) is linearly independent).

(b) FALSE (\( \{ b_1, \cdots , b_p \} \) could be linearly dependent!)

(c) TRUE (by the Invertible Matrix Theorem)

(d) FALSE (it’s the smallest spanning set, see page 200)

(e) FALSE (row-operations preserve linear independence relationships among the columns, see page 199)