MH1200 Quiz 4

October 27, 2016

Problem 1. Is it possible to construct a 3-by-3 matrix whose column space contains the vectors $(1, 1, 1)$ and $(1, 0, -1)$ but does *not* contain the vector $(5, 2, -1)$? Justify your answer.

1 1 5 — 1 1 5 – 1 1 5
1 0 2 — 0-1-3 – 0-1-3
1-1-1 — 0-2-6 – 0 0 0

Problem 2. Let $M_{3,3}$ be the set of all 3-by-3 matrices and $S = \{A \in M_{3,3} : \det(A) = 0\}$. Is S a subspace of $M_{3,3}$? Justify your answer.

03*3 's determinant is 0