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## Daniel Hondal

HW 7B: Problem 1

```
% Matrix A
A = [
    1  7 -1  4
    2 -1  3 -2
   -1  4  0  3
    3 -2 -2  1
]

% Matrix B
B = [25;6;14;-45]

% Determining linear independence
size(A)
det(A)
cond(A)

A =

     1     7    -1     4
     2    -1     3    -2
    -1     4     0     3
     3    -2    -2     1

B =

    25
     6
    14
   -45

ans =

     4     4

ans =

   -140
```

---

---

`ans =`

`10.7289`

## Part A: Prove Unique or Not Unique Solution

Matrix A is a square matrix (4x4). Matrix A is not singular the determinant is non-zero (-140) & the condition number is not a very large number ( $\text{cond}(A) \sim 10^1$ , so lose approximately one digit of accuracy). Therefore, Matrix A linear independent and thus has a unique solution.

## Part B: Unique Solution

Solving for x

`soln = A\B`

`soln =`

`-4.0000`

`10.1500`

`1.2500`

`-10.2000`

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