ENG 6, Spring 2016 **Lab 5 Linear Algebra**
Problem 1

1) Create a function, name it Lab5.m

- The input of the function should be (A, B), where A is a 2-by-2 matrix, and B is a two-element column vector.
- The output of the function is X
- The function should satisfy the below requirements:
  - Imagine $A=\begin{bmatrix} a & b \\ c & d \end{bmatrix}$, and $B=\begin{bmatrix} e \\ f \end{bmatrix}$
  - The function should solve the system of equations

    $$\begin{cases} bx+ay=e \\ dx+cy=f \end{cases}$$

    If there is no solution, or there are multiple solutions, the function returns X=empty array (i.e. X=[]), and display "cannot solve"
    If there is only one solution, the function returns the solution by a column vector X where

    $$X=\begin{bmatrix} x \\ y \end{bmatrix}$$

NOTE: any other invalid input (such as giving A as 3-by-3 matrix) will be avoided during test, so don't worry about the invalid input.

2) Test your function

Write a script, let:
A1 = [3 1; 1 6]; B1 = [9; 20];
A2 = [3 1; 6 2]; B2 = [9; 18];
A3 = [3 1; 6 2]; B3 = [9; 20];
Call your function using Lab5(A1, B1), Lab5(A2, B2), Lab5(A3, B3), respectively. Display the calculated result.

Submit three files:

- **The function file**
- **The script file**
- **PDF file published from the script**