**CSS 455 Winter 2012 C. Jackels**
**Activity No. 5 January 24, 2012**
**Names (must be present):**

## Part 1. Solve this system of equations for $x_1$ and $x_2$ and keep track of how you do it

$$\left.\begin{aligned} 2x_1 + 3x_2 &= 8 \ \ (\text{eqn } 1) \\ 5x_1 + 4x_2 &= 13 \ \ (\text{eqn } 2) \end{aligned}\right\} \textit{Example}$$

$$\text{from eq1: } x_1 = {(8 - 3x_2)}/{2} = 4 - \tfrac{3}{2}x_2$$
$$in \quad eq2 \quad 5\left(4 - \tfrac{3}{2}x_2\right) + 4x_2 = 13$$
$$-\tfrac{7}{2}x_2 = -7$$
$$x_2 = 2, \quad \text{now back in eq1}$$
$$x_1 = 4 - \tfrac{3}{2}x_2 = 4 - \tfrac{3}{s}(2) = 1$$

**Part II**

Given the matrices **M** and **A** below, calculate the product **MA,** showing that scales and combines linearly the rows of **A**. In our example, the rows represented equations. Then calculate the product **AM** and determine what it does to the elements of **A**. >> M=[-4/7 3/7; 5/7 -2/7];

```
>> A = [2 3; 5 4];
>> M

M =

  -0.5714   0.4286
   0.7143  -0.2857

>> A

A =

   2   3
   5   4

>> M*A

ans =

   1.0000        0
   0.0000   1.0000

>> A*M

ans =

   1.0000        0
   0.0000   1.0000
```

$$\mathbf{M} = \begin{pmatrix} \frac{-4}{7} & \frac{3}{7} \\ \frac{5}{7} & \frac{-2}{7} \end{pmatrix}$$

$$\mathbf{A} = \begin{pmatrix} 2 & 3 \\ 5 & 4 \end{pmatrix}$$

See reverse side