ME 3001 Lecture, Systems of Linear Equations
A Brief Review of Linear Algebra in MATLAB

- **General Form of A Linear System (review)**
  - The System of Equations

$$\begin{aligned} a_{11}x_1 + a_{12}x_2 + ... + a_{1n}x_n &= b_1 \\ a_{21}x_1 + a_{22}x_2 + ... + a_{2n}x_n &= b_2 \\ &\vdots \\ a_{n1}x_1 + a_{n2}x_2 + ... + a_{nn}x_n &= b_n \end{aligned}$$

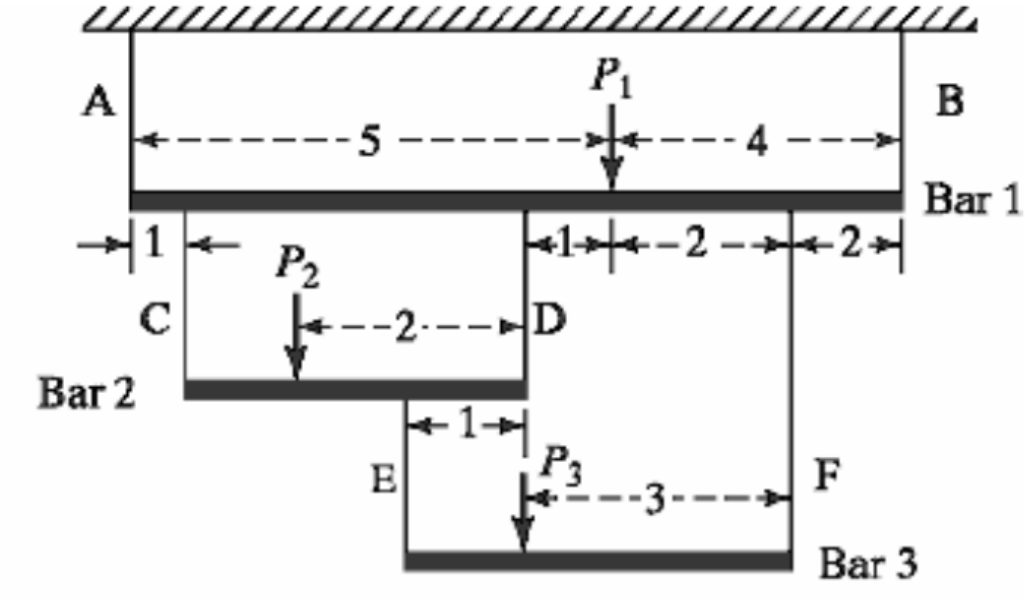
  - The System in Matrix Form

$$\begin{pmatrix} a_{11} & a_{12} & ... & a_{1n} \\ a_{21} & a_{22} & ... & a_{2n} \\ & \vdots & & \\ a_{n1} & a_{n2} & ... & a_{nn} \end{pmatrix} \times \begin{bmatrix} x_1 \\ x_2 \\ \vdots \\ x_n \end{bmatrix} = \begin{bmatrix} b_1 \\ b_2 \\ \vdots \\ b_n \end{bmatrix}$$

  - A common mistake

- **An Engineering Example - A Hanging Scaffolding**

As a group we are going to setup and solve a small statics problem.



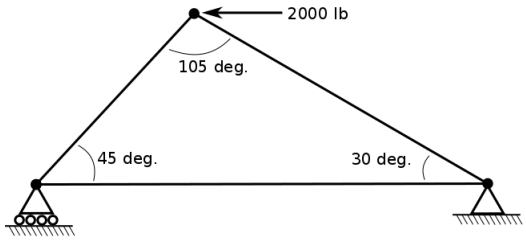
– **bar 1**

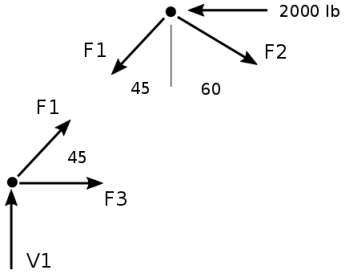
– bar 2

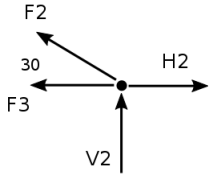
– bar 3

- **A Engineering Example (continued)**

- **An Engineering Example - A Simple Truss**







- **REMINDER - Homework 2 has been Posted.**

- **REMINDER - Homework 2 is due Wed. Feb. 8**

- **REMINDER - MATLAB script from today's lecture will be posted on ilearn.**