

# 6/25/25 Lecture 1

How to write answers:

$$\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 12/5 \\ -2/5 \end{pmatrix}$$

Do not picture the solution as a point  
\* Instead picture the solution as a vector that starts at the origin and ends at the point

Why vectors?

$$2x - 3y = 6$$

$$x = 3 + \frac{3}{2}y$$

eqns unknowns  
(1x2 linear system)

\* Think about adding calc III vectors

Can do 3 easy things to any linear system without changing the solution:

- ① Swap two equations
- ② multiply an equation by a non-zero scalar
- ③ add a multiple of one equation to another and replace the second one

## Augmented Matrix

$$\left[ \begin{array}{ccc|c} 3.7 & 5.3 & 3.9 & 69 \\ 22 & 7 & 43.5 & 363 \\ 5 & 0 & 43.4 & 231 \end{array} \right] = 3 \times 4 \text{ matrix}$$