Name: _____

Directions: Submit a PDF to Gradescope. You may collaborate with other classmates in both sections of MAT 150, and seek help from your embedded tutors and me, but your solutions must be your own work.
Be sure to show work and/or explain your reasoning.

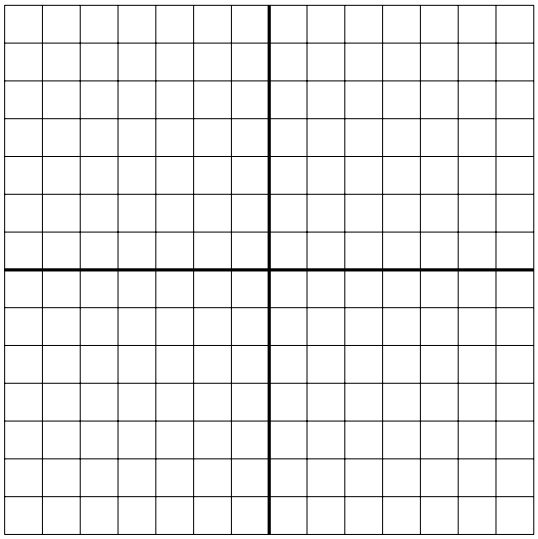
Read section 1.5 and answer the following:

1. Write the general solution for the homogeneous system below in the following way:

   - Use the parameter t for the free variable
   - Write the solution as $t\mathbf{v}$ for some vector $\mathbf{v}$

$$\begin{bmatrix} 1 & 2 & 0 \\ -2 & -4 & 0 \end{bmatrix}$$

2. Draw the span of the vector $\mathbf{v}$ from the previous problem:



3. Write the general solution for the nonhomogeneous system below in the following way:

   - Use the parameter t for the free variable
   - Write the solution as $t\mathbf{v} + \mathbf{p}$ for some vector $\mathbf{v}$ and $\mathbf{p}$

$$\begin{bmatrix} 1 & 2 & 3 \\ -2 & -4 & -6 \end{bmatrix}$$

4. Draw the span of the vector $\mathbf{v}$ from problem 2 again. Add to you drawing the line defined by $t\mathbf{v} + \mathbf{p}$ where t is any real number.