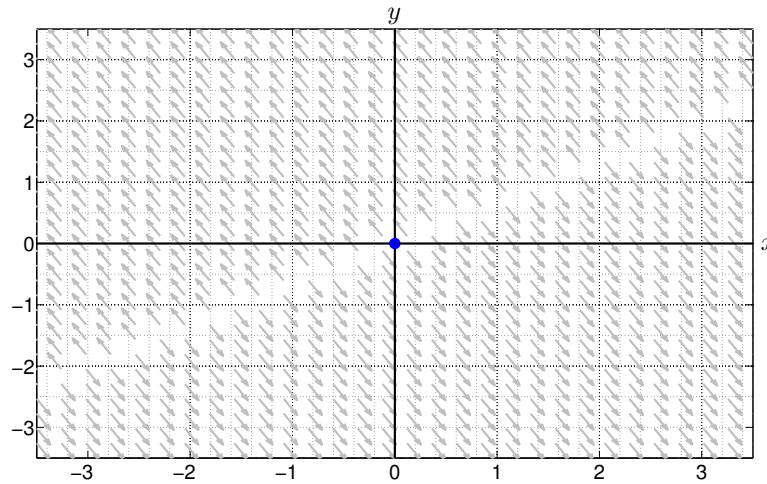


§3.5 (PART 2): STABILITY - ZERO EIGENVALUES



Consider the system:

$$\frac{d\mathbf{y}}{dt} = \begin{bmatrix} 2 & -3 \\ -4 & 6 \end{bmatrix} \mathbf{y}$$

Eigenvalues:

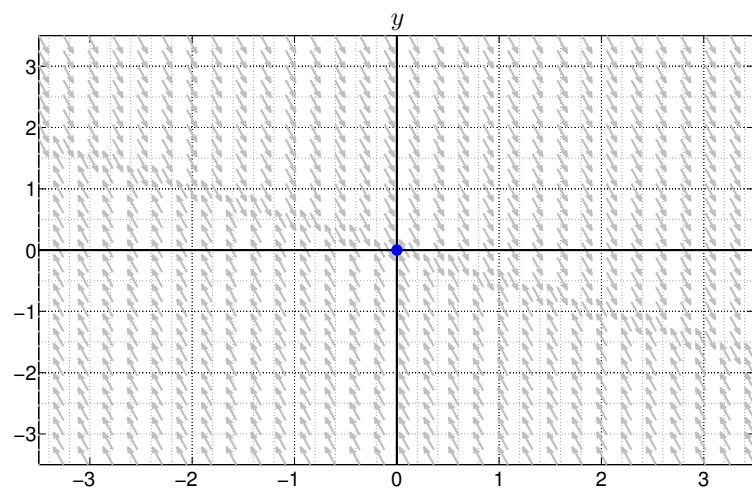
Eigenvectors:

Gen. Sol. :

$$x(t) =$$

$$y(t) =$$

For the system above, find the unique solution if $\mathbf{y}(0) = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$ and describe the behavior of $x(t)$ and $y(t)$ as $t \rightarrow \infty$.



Consider the system:

$$\frac{d\mathbf{y}}{dt} = \begin{bmatrix} 1 & 2 \\ -3 & -6 \end{bmatrix} \mathbf{y}$$

Eigenvalues:

Eigenvectors:

Gen. Sol. :

$$x(t) =$$

$$y(t) =$$

For the system above, find the unique solution if $\mathbf{y}(0) = \begin{bmatrix} 7 \\ 2 \end{bmatrix}$ and describe the behavior of $x(t)$ and $y(t)$ as $t \rightarrow \infty$.