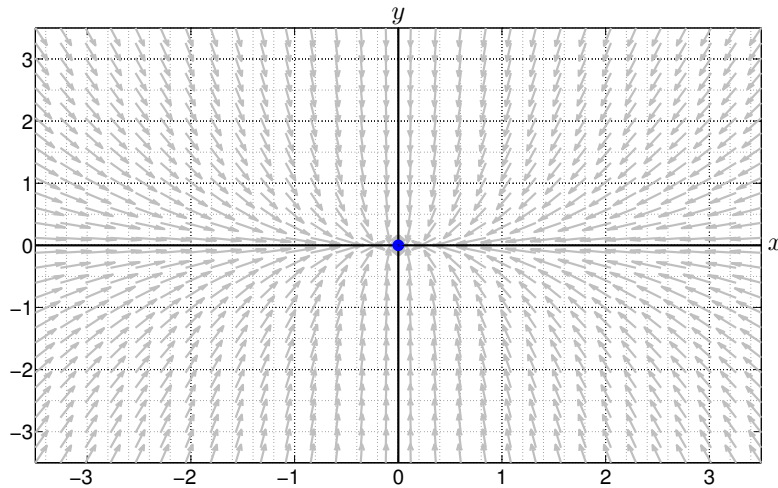


## §3.3: STABILITY - REAL DISTINCT EIGENVALUES



Consider the system:

$$\frac{d\mathbf{y}}{dt} = \begin{bmatrix} -2 & 0 \\ 0 & -5 \end{bmatrix} \mathbf{y}$$

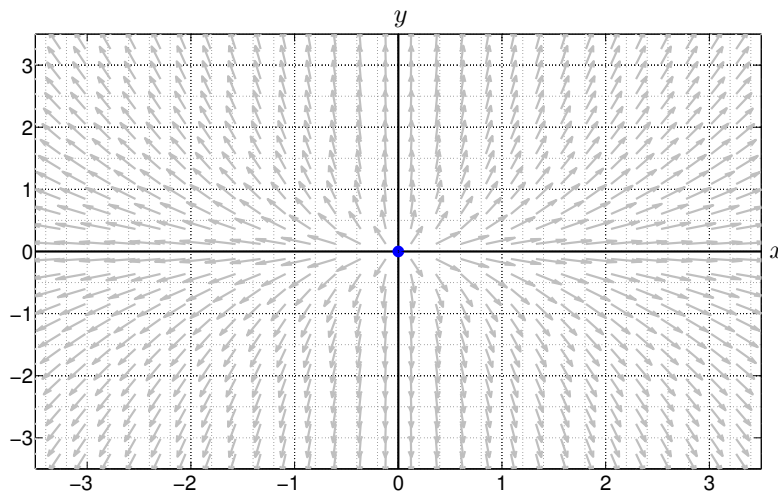
Eigenvalues:

Eigenvectors:

General Solution:

$$x(t) =$$

$$y(t) =$$



Consider the system:

$$\frac{d\mathbf{y}}{dt} = \begin{bmatrix} 2 & 0 \\ 0 & 5 \end{bmatrix} \mathbf{y}$$

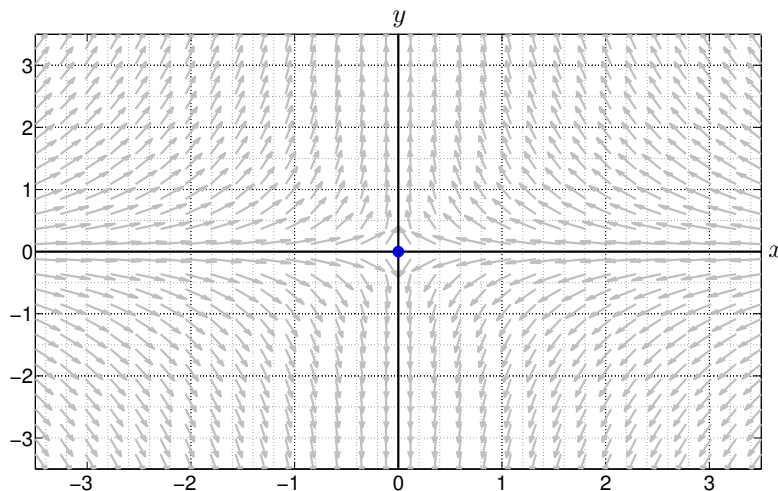
Eigenvalues:

Eigenvectors:

General Solution:

$$x(t) =$$

$$y(t) =$$



Consider the system:

$$\frac{d\mathbf{y}}{dt} = \begin{bmatrix} -2 & 0 \\ 0 & 5 \end{bmatrix} \mathbf{y}$$

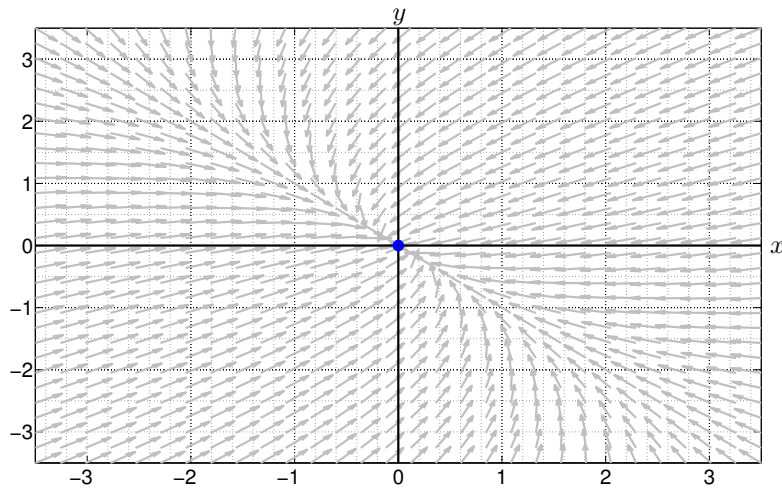
Eigenvalues:

Eigenvectors:

General Solution:

$$x(t) =$$

$$y(t) =$$



Consider the system:

$$\frac{d\mathbf{y}}{dt} = \begin{bmatrix} -4 & -2 \\ -1 & -3 \end{bmatrix} \mathbf{y}$$

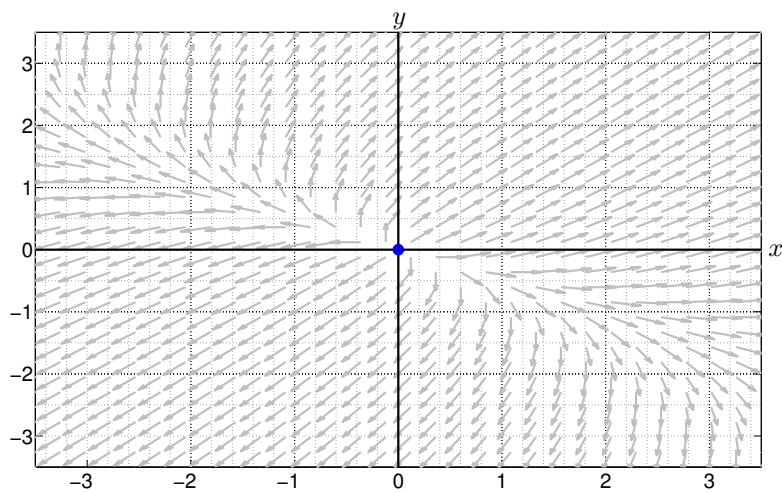
Eigenvalues:

Eigenvectors:

General Solution:

$$x(t) =$$

$$y(t) =$$



Consider the system:

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

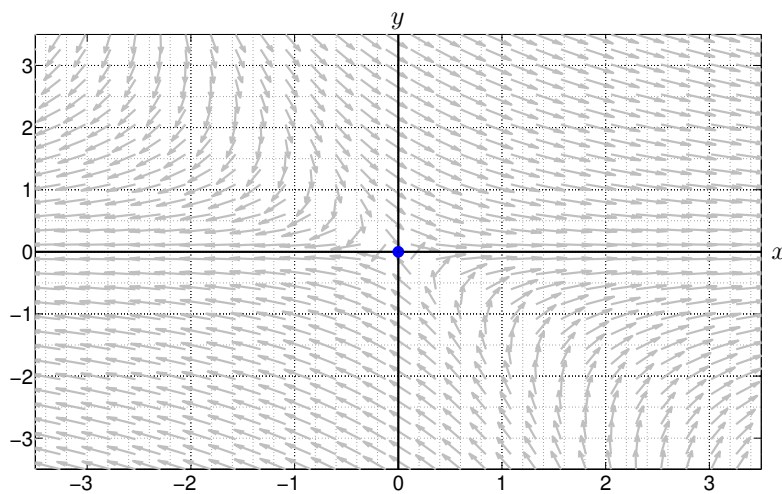
Eigenvalues:

Eigenvectors:

General Solution:

$$x(t) =$$

$$y(t) =$$



Consider the system:

$$\frac{d\mathbf{y}}{dt} = \begin{bmatrix} 3 & 2 \\ 0 & -2 \end{bmatrix} \mathbf{y}$$

Eigenvalues:

Eigenvectors:

General Solution:

$$x(t) =$$

$$y(t) =$$