

## HOMWORK 11-PART B

In following 3 exercises, (a) solve the initial value problem,  
(b) State which case they belong to and draw the solution on the phase plane.(Be precise of the flow direction).

1.  $y' = Ay$ , where  $A = \begin{pmatrix} 3 & 3 \\ -6 & -3 \end{pmatrix}$  and  $y(0) = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$ .

2.  $y' = Ay$ , where  $A = \begin{pmatrix} 2 & 3 \\ -2 & -1 \end{pmatrix}$  and  $y(0) = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$ .

3.  $y' = Ay$ , where  $A = \begin{pmatrix} -1 & -1 \\ 3 & -2 \end{pmatrix}$  and  $y(0) = \begin{pmatrix} 2 \\ 0 \end{pmatrix}$ .