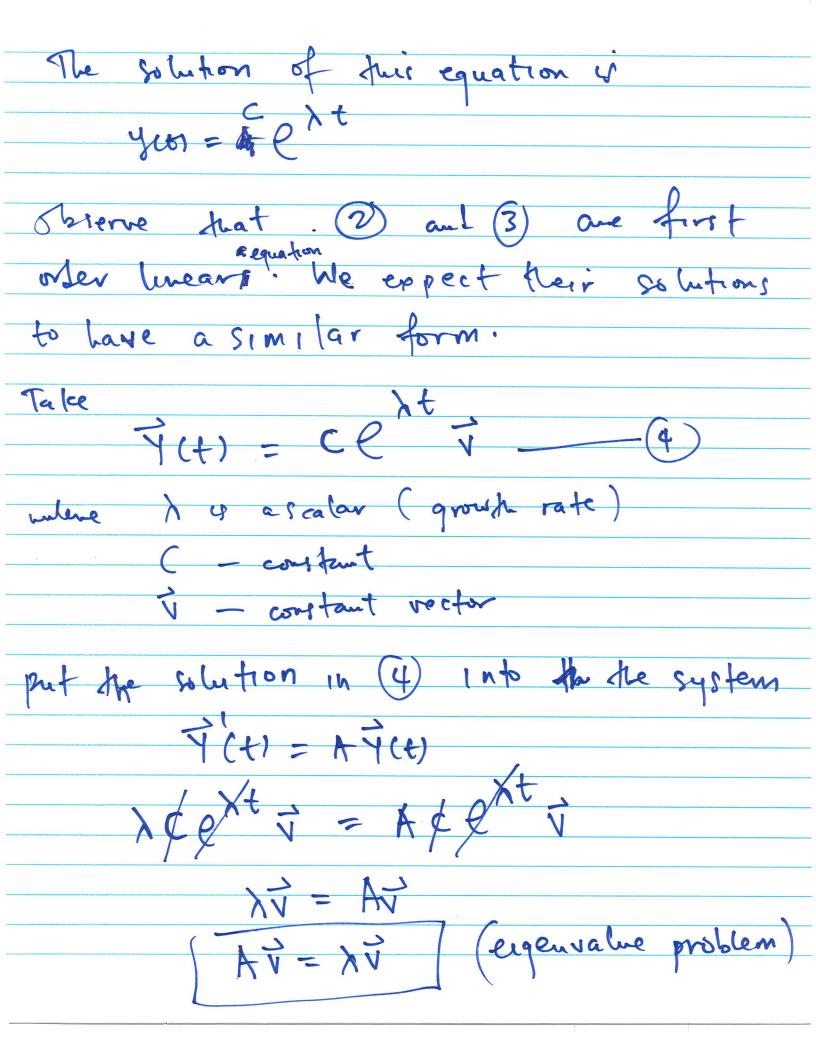
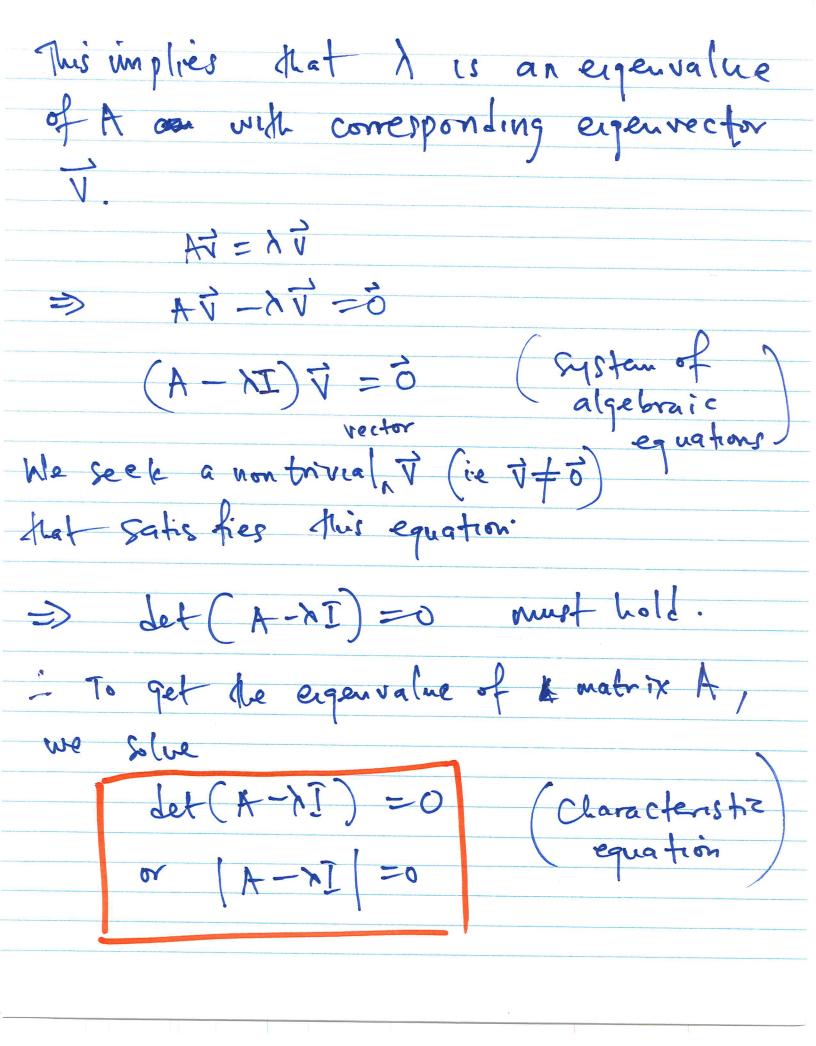
Constant coefficient Linear systems Consider the following system of ODE. y'= y, +2y2 y= 34, +242 Let  $\overline{Y}(t) = \begin{pmatrix} y_1 \\ y_2 \end{pmatrix}$ ,  $\overline{Y}'(t) = \begin{pmatrix} y_1' \\ y_2' \end{pmatrix}$ He can write (1) as 7(t) = A7(t) where  $r = \begin{pmatrix} 1 & 2 \\ 3 & 2 \end{pmatrix}$ Que: How can we solve this system ! for Let us consider the scalar \$ 500E,

Let us consider the scalar \$ 5





And for the corresponding eigenvector, Thus, Tc+1 = C PX is a solution of the system. TA If (+1) = (, e T, and T2(t) = Ge l'et V2, Mum are solutions Fifth the of a linear system, then 7, (t) + 7, (t) = Ge V, + Ge V2 is also a solution of the system. This y called principle of Syperposition.

Let us return to the example

$$\begin{array}{l}
\lambda = \lambda = \lambda \\
\lambda =$$