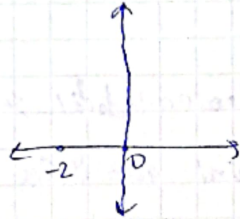


Abdullah kökcü 18253023

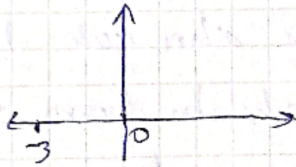
a) $\lambda(\lambda+2)$ $\lambda_1=0$ $\lambda_2=-2$ dir

grafik



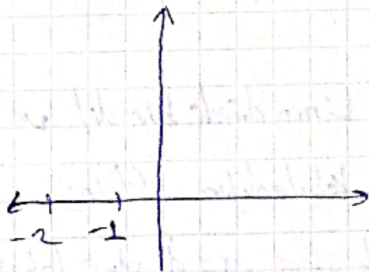
$\text{Re } \lambda_1=0$ ve $\text{Re } \lambda_2 < 0$
olduğu için kararlıdır

b) $\lambda^2(\lambda+3)$ $\lambda_1, \lambda_2=0$ $\lambda_3=-3$



Sistem kullı kök içerdığı için
kararsızdır

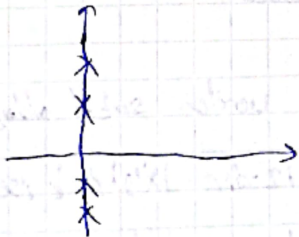
c) $(\lambda+1)(\lambda+2)$ $\lambda_1=-1$, $\lambda_2=-2$



$\text{Re } \lambda_1, \lambda_2 < 0$

olduğu için sistem kararlıdır

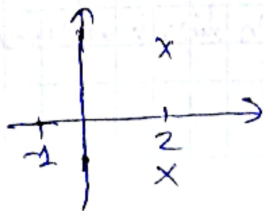
d) $(\lambda^2+1)(\lambda^2+9)$ $\lambda_1=\sqrt{-1j}$, $\lambda_2=-\sqrt{-1j}$, $\lambda_3=\sqrt{-3j}$, $\lambda_4=-\sqrt{-3j}$



$\text{Re } \lambda_1, \lambda_2, \lambda_3, \lambda_4 = 0$

olduğu için kararsızdır

e) $(\lambda+1)(\lambda^2-4\lambda+9)$ $\lambda_1=-1$ $\lambda_2=2-\sqrt{5j}$ $\lambda_3=2+\sqrt{5j}$



$\text{Re } \lambda_2$ ve $\lambda_3 > 0$

olduğu için kararsızdır