

HOMWORK 9-PART A

1. Solve the following linear system $x' = Ax$.

$$A = \begin{pmatrix} 4 & 1 \\ -5 & -2 \end{pmatrix}.$$

2. Solve the following linear system $x' = Ax$.

$$A = \begin{pmatrix} 2 & -4 \\ 2 & -7 \end{pmatrix}.$$

3.(1) Determine that whether $\begin{pmatrix} 1 \\ \cos t \end{pmatrix}$, $\begin{pmatrix} 1 \\ \sin t \end{pmatrix}$ are linearly independent or not?

(2) Determine that whether $\begin{pmatrix} 1 \\ t \end{pmatrix}$, $\begin{pmatrix} 1 \\ t^2 \end{pmatrix}$ are linearly independent or not?