Due Thursday, April 21 at the beginning of class.

1. Solve the initial value problem $\mathbf{x}' = \begin{pmatrix} -2 & 1 \\ -5 & 4 \end{pmatrix} \mathbf{x}$, $x_1(0) = 1$, $x_2(0) = 3$.

2. Find the general solution of the system

   (a) $\mathbf{x}' = \begin{pmatrix} -1 & -4 \\ 1 & -1 \end{pmatrix} \mathbf{x}$

   (b) $\mathbf{x}' = \begin{pmatrix} 1 & -4 \\ 4 & -7 \end{pmatrix} \mathbf{x}$

   (c) $\mathbf{x}' = \begin{pmatrix} 1 & 2 & -1 \\ 1 & 0 & 1 \\ 4 & -4 & 5 \end{pmatrix} \mathbf{x}$