

2. [15 points] Solve each, finding explicit real-valued solutions as indicated.

a. [8 points] Solve the initial value problem $x' = -y$, $y' = 12x - 7y$, $x(0) = 2$, $y(0) = 1$.

b. [7 points] Find the general solution to $\begin{pmatrix} x_1 \\ x_2 \end{pmatrix}' = \begin{pmatrix} 6 & -5 \\ 4 & -2 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix}$.