Read each problem **very carefully** before starting to solve it. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. (a) Find the general solution $\boldsymbol{y}$ of the system $\boldsymbol{y}' = \begin{pmatrix} 4 & 7 \\ -2 & -5 \end{pmatrix} \boldsymbol{y}$.

   (b) (Do this last, if you have time.) Find the particular solution, given $\boldsymbol{y}(0) = \begin{pmatrix} 10 \\ -5 \end{pmatrix}$.

2. Find the general solution of $\boldsymbol{y}' = \begin{pmatrix} 1 & 2 \\ -2 & 1 \end{pmatrix} \boldsymbol{y}$. Please, write your answer in terms of real-valued vectors and functions.