

Problem 1

Find a general solution to the system of differential equations

$$\begin{aligned}y_1' &= y_1 + 5y_2 \\y_2' &= -2y_1 + -y_2\end{aligned}$$

Problem 2

Solve the system $Y' = \begin{bmatrix} 2 & 1 & 0 \\ 0 & 2 & 1 \\ 0 & 0 & 4 \end{bmatrix} Y$.