

Problem 1

Find a general solution to the system of differential equations

$$y_1' = 2y_1 + 3y_2 + 5x$$

$$y_2' = y_1 + 4y_2 + 10$$

(Notice that this is the same as $Y' = \begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix} Y + \begin{bmatrix} 5x \\ 10 \end{bmatrix}$)