KFUPM Term (112) Name_____Serial#_____

MATH 202 Quiz # 4 ID#_____Section_____

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1) Find the general solution of the following systems:

A) $X' = \begin{pmatrix} 3 & -2 & 0 \\ -1 & 3 & -2 \\ 0 & -1 & 3 \end{pmatrix} X$

B) $X' = \begin{pmatrix} 1 & 0 & 1 \\ 1 & 0 & 1 \\ -1 & -1 & -1 \end{pmatrix} X$

C) $\frac{dx}{dt} = 4x - y$

$\frac{dy}{dt} = x + 2y$

2) Consider the system of differential equation

$X' = AX + \begin{pmatrix} 3 \\ e^{-t} \end{pmatrix}$

Let $(t) = \begin{pmatrix} e^{-2t} & e^{-5t} \\ e^{-2t} & -2e^{-5t} \end{pmatrix}$ be the fundamental matrix of the associated homogeneous system. Find the particular solution of the above system.