Name:
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MAP 2302.4787
Cyr

Quiz 6
You must show all work to receive full credit!!

Problem 1. (2.5 points) Find a general solution to the system

$$\mathbf{x}'(t) = \begin{bmatrix} 1 & 3 \\ 12 & 1 \end{bmatrix} \mathbf{x}(t).$$

Problem 2. (2.5 points) Given that the vectors below are solutions to the system $\mathbf{x}'(t) = \mathbf{A}\mathbf{x}(t)$, show that they form a fundamental solution set, and write a fundamental matrix for the system.

$$\mathbf{x}_1 = \begin{bmatrix} e^t \\ e^t \\ e^t \end{bmatrix}, \mathbf{x}_2 = \begin{bmatrix} \sin t \\ \cos t \\ -\sin t \end{bmatrix}, \mathbf{x}_3 = \begin{bmatrix} -\cos t \\ \sin t \\ \cos t \end{bmatrix}$$