

Group members (2 to 4): _____

- (1) For the family of initial values problems $x_1(0) = 0$, $x_2(0) = 1$, and $x' = Ax$ where

$$A = \begin{pmatrix} 1 & 1 \\ -a^2 & 1 \end{pmatrix}$$

compute $\lim_{a \rightarrow 0} x$. (First solve the initial value problem completely for all $a > 0$, then take the limit. You will need to use L'Hopital's rule.)