

Math 3280 Worksheet 33: Euler's method for systems of ODEs

Group members (2 to 4): _____

- (1) Approximate the value of $x_1(1)$ and $x_2(1)$ for the system $x_1' = x_1 + 2x_2$, $x_2' = 2x_1 + x_2$ if $x_1(0) = 0$ and $x_2(0) = 2$ using Euler's method with 2 steps.

- (2) Compare your answer above to the exact solution using the eigenvector/eigenvalue method, and make a sketch of the system including your approximate trajectory.