Numerical Computing II Homework 6

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We must solve the equation y’ = Ay.

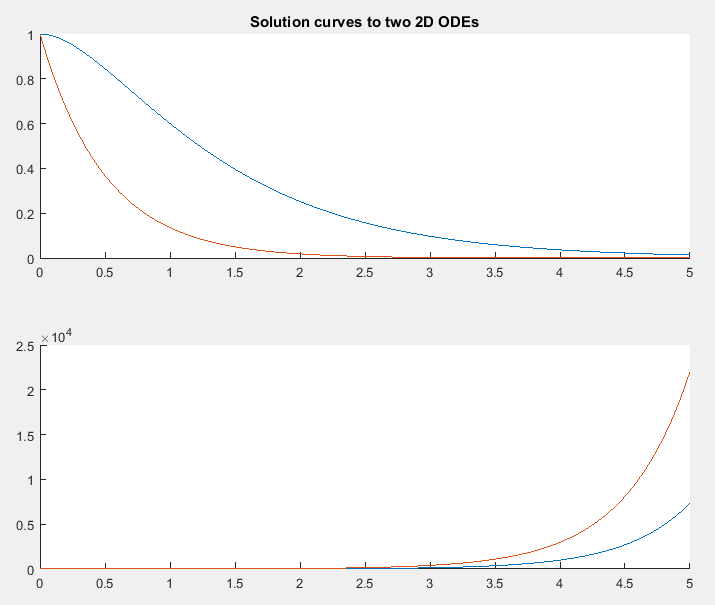
Now *A* has eigenvalues and eigenvectors .

Construct the solution product:

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Some Visuals:



The code used to generate these:

t = linspace(0,5);

n = length(t);

ylist1 = zeros(2, n);

for i = 1:1:n

ylist1(1,i) = 2\*exp(-t(i)) - exp(-2\*t(i));

ylist1(2,i) = exp(-2\*t(i));

end

ylist2 = zeros(2, n);

for i = 1:1:n

ylist2(1,i) = (2/3)\*exp(-t(i)) + (1/3)\*exp(2\*t(i));

ylist2(2,i) = exp(2\*t(i));

end

figure(1)

subplot(2,1,1)

hold on

plot(t, ylist1(1,:))

plot(t, ylist1(2,:))

hold off

title('Solution curves to two 2D ODEs')

subplot(2,1,2)

hold on

plot(t, ylist2(1,:))

plot(t, ylist2(2,:))

hold off