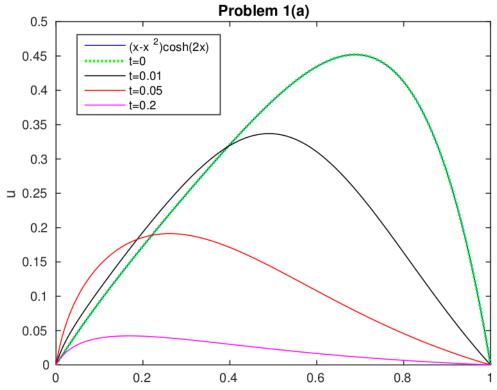
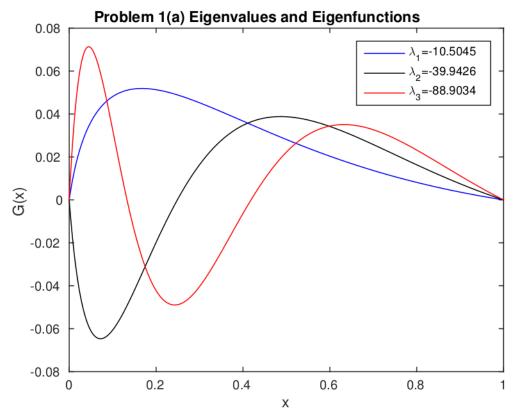
MAE/MSE 502, Spring 2016, Take-home Project #1 Solutions Prob 1.
(a)

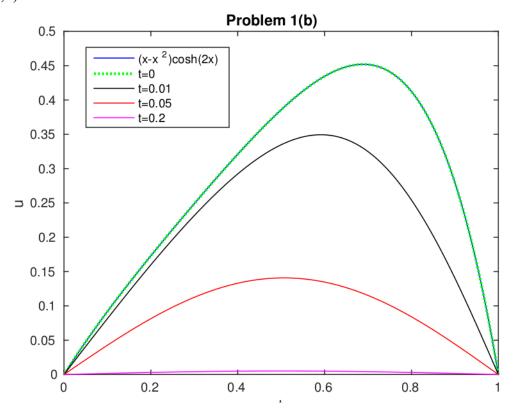


First 3 eigenfunctions:



(b) (The eigenfunctions for this part are simply $\sin(n\pi x)$, n = 1, 2, 3, ...)

Plot of u(x, t):



Prob 2.

$$u(r,\theta) = r^3 \sin(3\theta) + 0.5 r^6 \sin(6\theta) .$$

Plot:

