MATH 4545 QUIE #2 NAME
Given the SL-BVP $\int f'' + \lambda f = 0$, $f = f(x)$ $0 \le x \le 1$ $\int f'(0) = 0$ $\int f(1) - f'(1) = 0$.
$\left(\int_{0}^{1}(0)=0\right) f(1)-f'(1)=0.$
as Determine all e-values of the problem graphically. b) Determine all e-fuctions of the problem.
61 Veternine all e-Tuctions of the problem.
c) No estimates required but show the 1st three e-values
Solv graphs.
1=0 => f= ax+6 f=q
g'(01=0=) (a=0) => f=6 f'=0
f(1) - f'(1)=0 => (b=0) So d=0 is not an e-value
120 => f= (conti x + cz sin Ja x f'= - cott sin va x + co Jacon va x
f /01=0 => (2=0 => (f= CI CI XXX) f'= -CI VI CI X
f(1) - f'(1) = 0 => cm \(\int + \int \si \int = 0 = >
tan II = -/II
$\lambda < 0$ $\lambda = -a^2$ $a > 0$
f=c, cuhax + c, suhax f=c, a suhax +c, a cuhax
f(0 =0 => C2=0 => (f= (1 cuhax) f= (1 a suhax
$f(1-f'(1)=0=)$ contra = a sutra = 0 => (tantra = $\frac{1}{a}$)
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
$x = \sqrt{\lambda}$ $a = \sqrt{-\lambda_1}$
The possitive e-values are Ne solutions A_2 , A_3 to ten $\sqrt{A_n} = -\frac{1}{\sqrt{A_n}}$. The e-functions $(f_n \sim con \sqrt{A_n} \times) = 2,3,$
1
There is one negative e-value (di=-a²) where a solve tanha: 1
The corresponding e-function is $(f, -\cosh qx)$ (estimates $d_1 \approx -1.44$ $d_2 \approx 7.8$ $d_3 \approx 37.2$)
(estimates d, = -1.44 dz = 7.8 dz = 37.2)