**Problem**

Consider the eigenvalues of eighth-order Sturm–Liouville problems

 $y^{(8)}\left(x\right)=μ^{(8)}y\left(x\right)-\sin(\left(x\right))-x,$ $x\in \left(0,1\right),$

Subject to boundary conditions

 $y\left(0\right)=y^{'}\left(0\right)=y^{''}\left(0\right)=y^{'''}\left(0\right)=0,$

 $y\left(1\right)=y^{'}\left(1\right)=y^{''}\left(1\right)=y^{'''}\left(1\right)=0.$