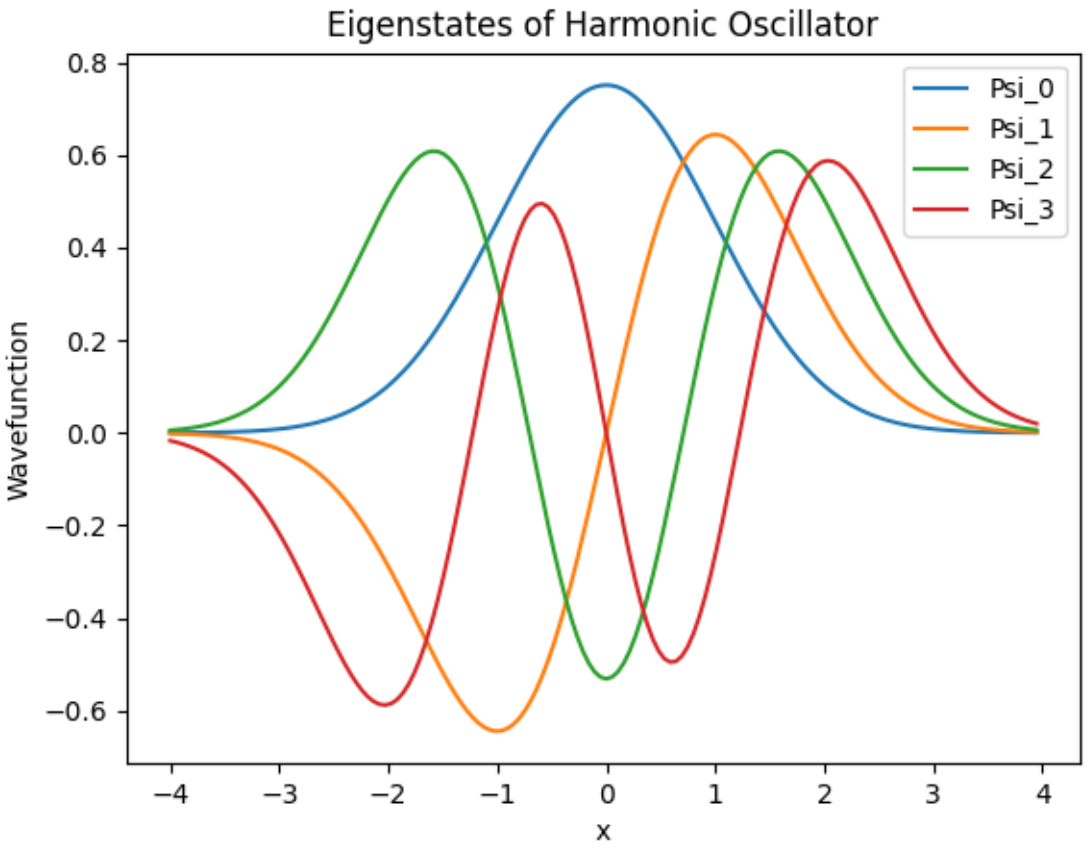
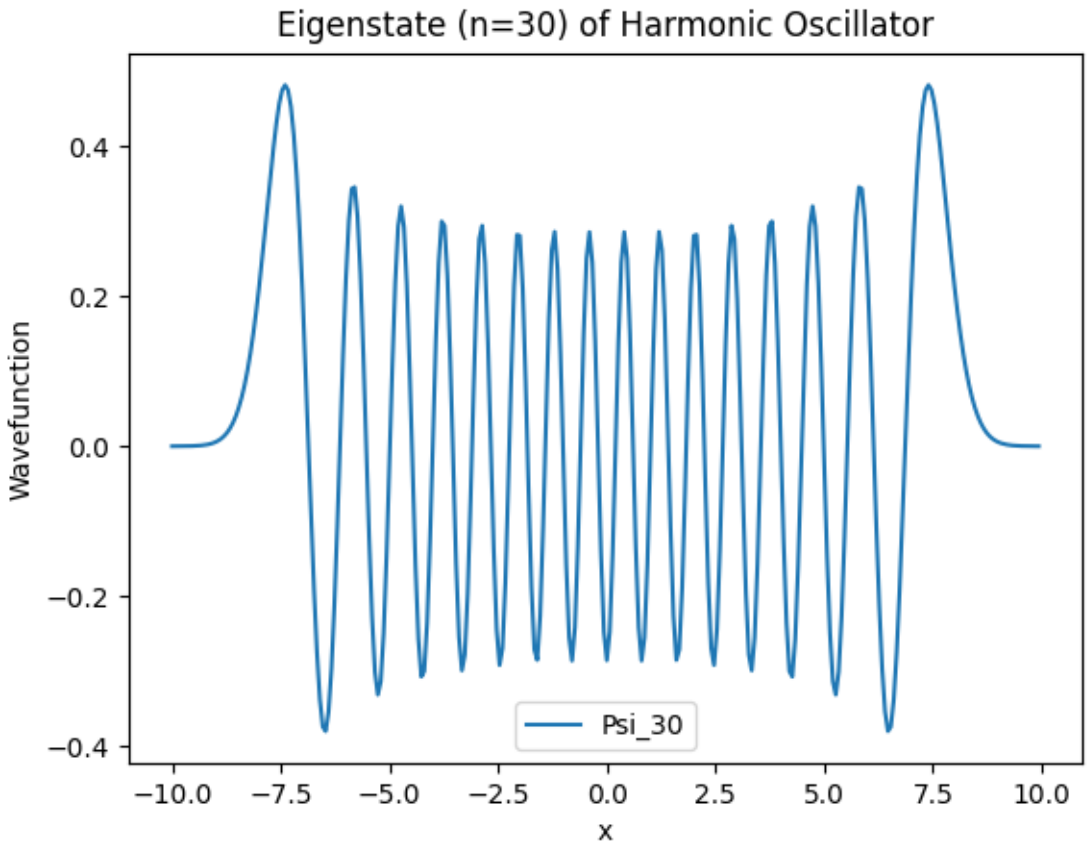
Exercise 13 (a):



Plot of wavefunctions of different states

Exercise 13 (b):



Wavefunction of state n=30

Note: The first time when I ran the program it took about 5mins to give the output because of my recursive implementation of the Hermite function. After the iterative loop implementation the runtime was reduced to couple of seconds

Exercise 13 (b):

The uncertainity in position for $n = 5$ is 2.3451896081212955. We have used the integration limits to be -5 to 5 as for large values of limits the exponential function in the wavefunction overflows and underflows, also for $\mid x \mid > 5$ the wavefunction goes to zero. Thus we can use the above limits