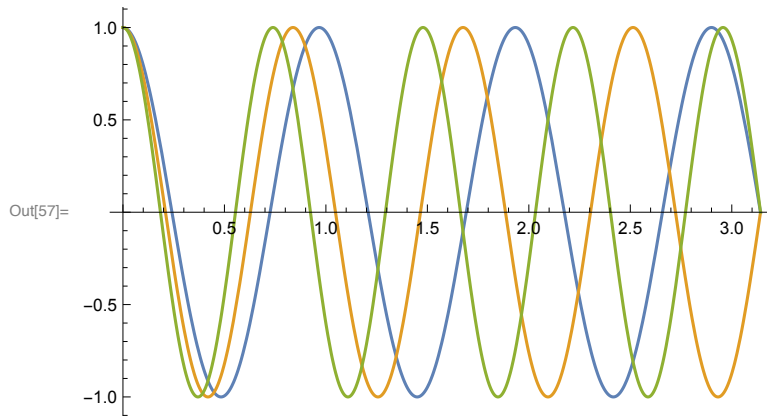


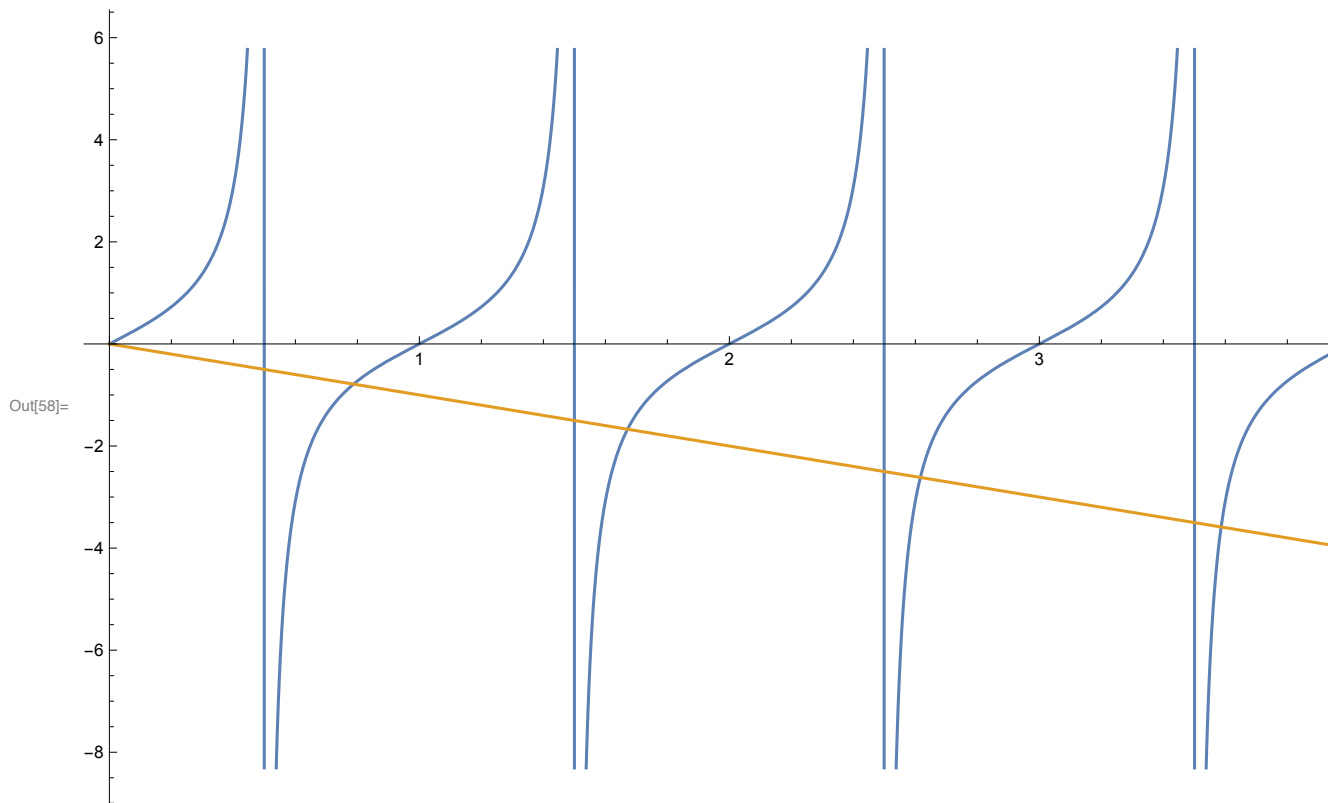
(* Problem 2.7:3c *)
 (* we can take any value for a,
 say a=π. We have plotted the graphs of the 7th, 8th, and 9th eigenfunction. *)
 a = π;
 n = 7;

```
Plot[{Cos[(2 * n - 1) π * x / (2 * a)],  
      Cos[(2 * (n + 1) - 1) π * x / (2 * a)], Cos[(2 * (n + 2) - 1) π * x / (2 * a)]}, {x, 0, a}]
```



(* Problem 2.7:3c *)

```
In[58]:= Plot[{Tan[λ * a], -λ}, {λ, 0, 4}]
```



(* we observe that $\lambda_1 \approx .8$, $\lambda_2 \approx 1.65$, $\lambda_3 \approx 2.6$, $\lambda_4 \approx 3.6$, etc. and plot the first few graphs of the eigenfunctions*)

```
Plot[{Sin[.8 * x], Sin[1.65 * x], Sin[2.6 * x], Sin[3.6 * x]}, {x, 0, a}]
```

