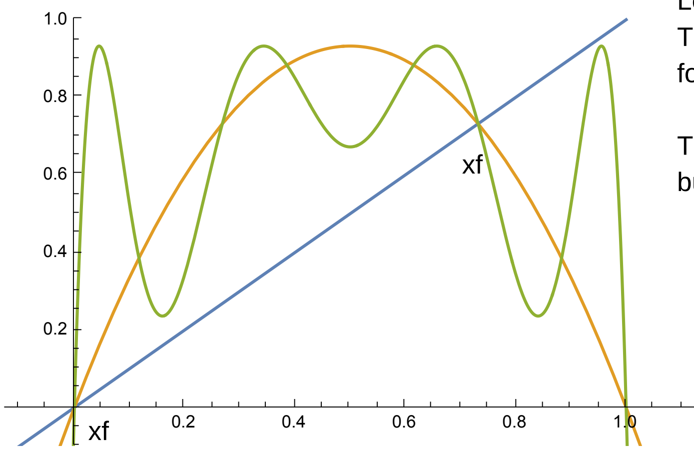
In[35]:=

```
f[x_, r_] := r * x * (1 - x)
f3[x_, r_] := f[f[f[x, r], r], r]
Plot[{x, f[x, 1 + Sqrt[8] - 0.1], f3[x, 1 + Sqrt[8] - 0.1]},
 {x, -0.1, 1.1}, PlotRange → {-0.1, 1}]
```

Out[37]=



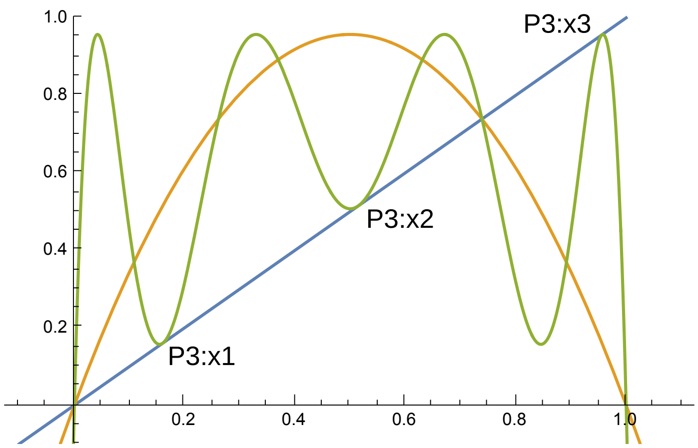
Logistic map for r < P3 window.
The original fix points xf exist but became unstable for much lower r, ie, at r_PD.

The f3 map has those same fixed points (unstable) but not yet any others.

In[33]:=

```
Plot[{x, f[x, 1 + Sqrt[8]], f3[x, 1 + Sqrt[8]]}, {x, -0.1, 1.1}, PlotRange → {-0.1, 1}]
```

Out[33]=

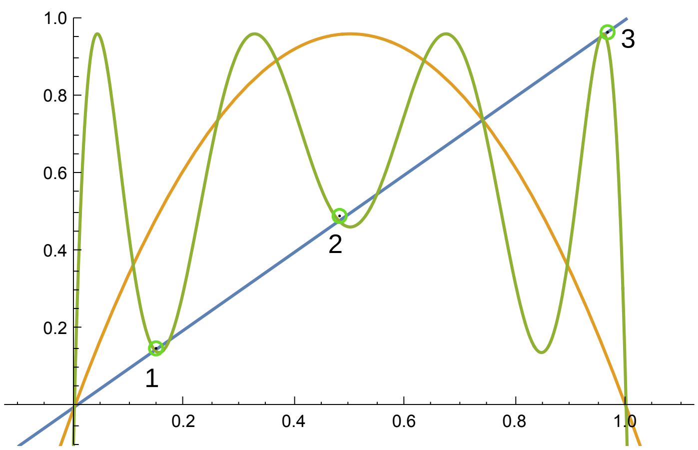


At r = 1 + sqrt(8) the f3 map is undergoing a saddle-node bifurcations to generate a P3 orbit.

In[41]:=

```
Plot[{x, f[x, 1 + Sqrt[8] + 0.02], f3[x, 1 + Sqrt[8] + 0.02]},
 {x, -0.1, 1.1}, PlotRange → {-0.1, 1}]
```

Out[41]=



The 3 labeled points are the nodes of the f3 map corresponding to the P3 orbit of f. The unlabeled three points are saddles (unstable); note the local slope is greater than 1 at each of these points.