## Research on 3-periodic Points for the Generalized Tent Maps

Shuai, Yi (School: Huayang High School)
In this paper, we investigate the generalized tent maps, whose vertex, left endpoint and right endpoint are ( $a, b$ ), ( $0, s$ ) and ( $1, \mathrm{c}$ ) respectively, where $0<a<1,0<b<=1,0<=<1$ and $0<=s<1$. According to the Li-York theorem, the core of my research is that under the following different situations, we give the conditions for the existence of 3-periodic points and the number of 3-periodic points for the generalized tent maps, and which three of the 3-periodic points for fare determined to form a periodic orbit. From the easy cases to difficult cases, we firstly consider the three cases that the left endpoint and the right endpoint of the maps are $(0,0)$ and $(1, c)$ separately, the vertex is $(1 / 2,1),(a, 1)$ or $(1 / 2, b)$ separately. Lastly, we investigate the cases that the vertex, left endpoint and right endpoint are $(a, b),(0, s)$ and $(1, c)$ separately, where $0<a<1,0<b<=1,0<=c<1$ and $0<=s<1$.

