Hill Climbing First-improvement (nearest ascent)

Local maximum points:

7 - Attraction basin: 0,1,2,3,4,5,6,7

10 - Attraction basin: 8,9,10,11

12 - Attraction basin: 12,13,14,15

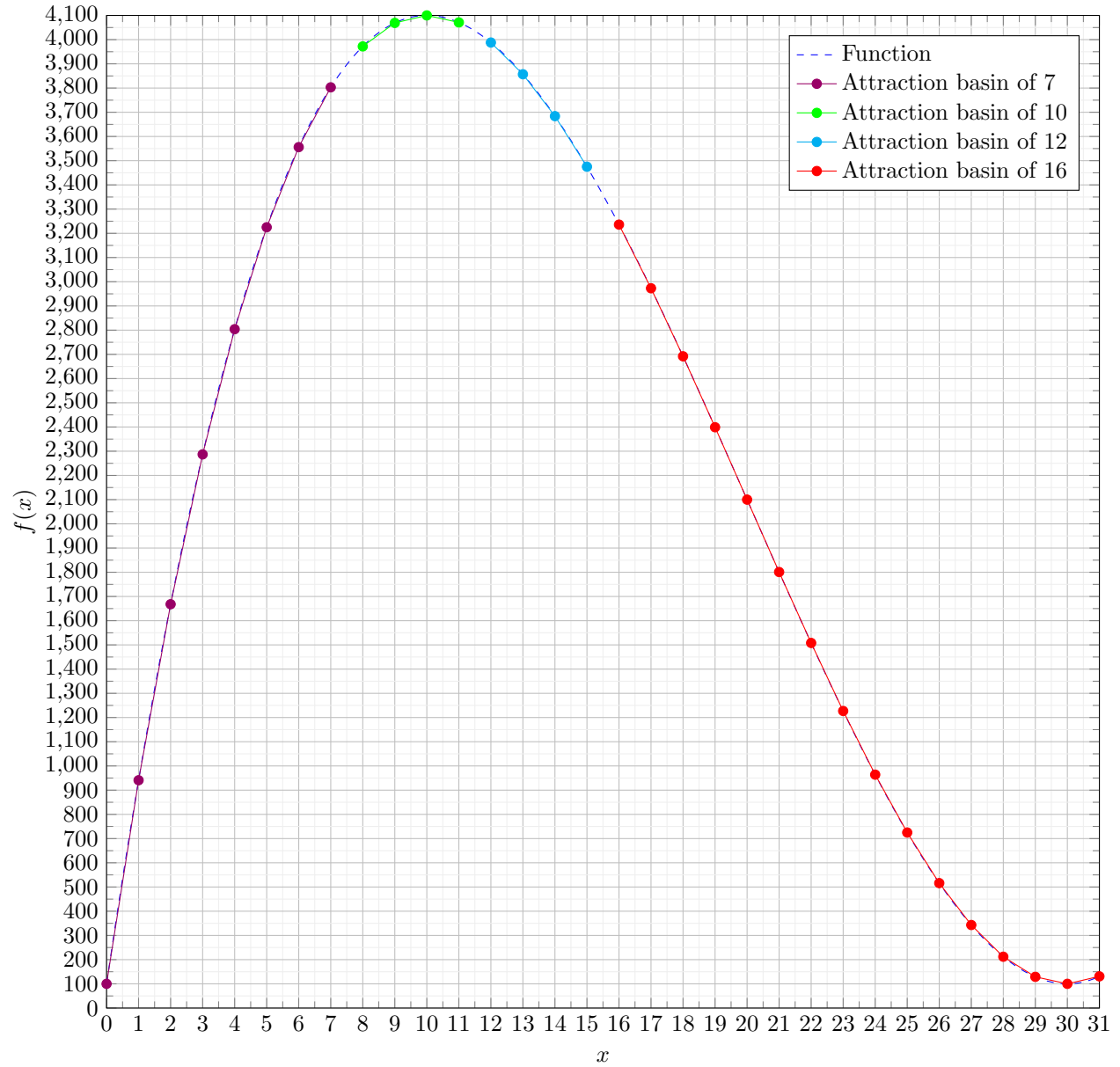16 - Attraction basin: 16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31

Figure 1: Hill Climbing First-improvement

Hill Climbing Best-improvement (steepest ascent)

Local maximum points:
7 - Attraction basin: 6,7,22,23
10 - Attraction basin: 0,1,2,3,5,8,9,10,11,13,14,15,21,24,25,26,27,29,30,31
12 - Attraction basin: 4,12,28
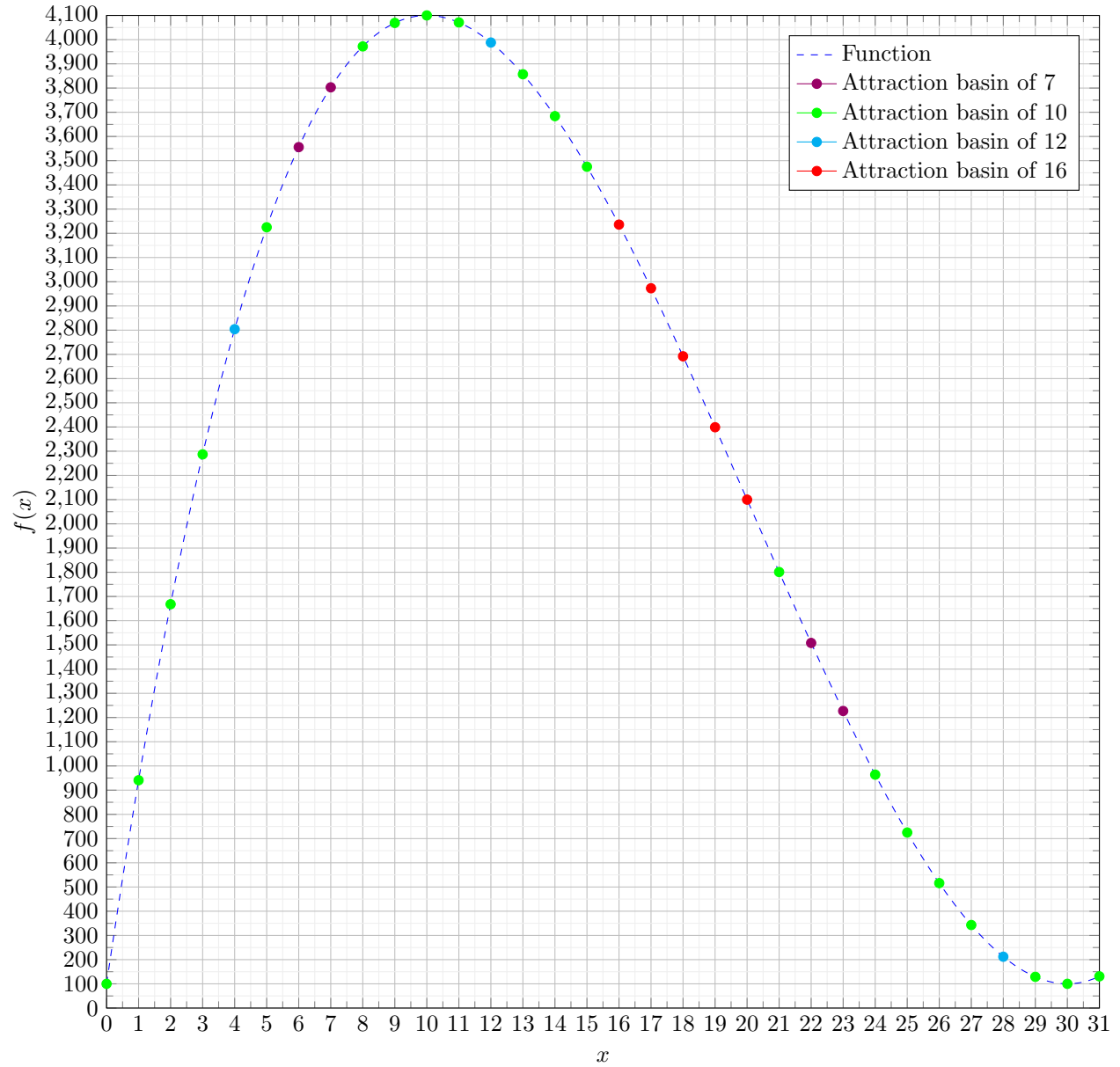16 - Attraction basin: 16,17,18,19,20

Figure 2:   Hill Climbing Best-improvement

The local maximum points of function $f(x) = x^3 - 60 \cdot x^2 + 900 \cdot x + 100$ are $f(7) = 3803$, $f(10) =$

$4100, f(12) = 3988, f(16) = 3236$. The attraction basins for FIHC atract all the closest points that are lower than them and for BIHC attraction basins the points are spread across the domain and the method manages to find the global maximum from most of them. FIHC probability to find the best local maximum is 12.5% and for BIHC it is 62.5%.