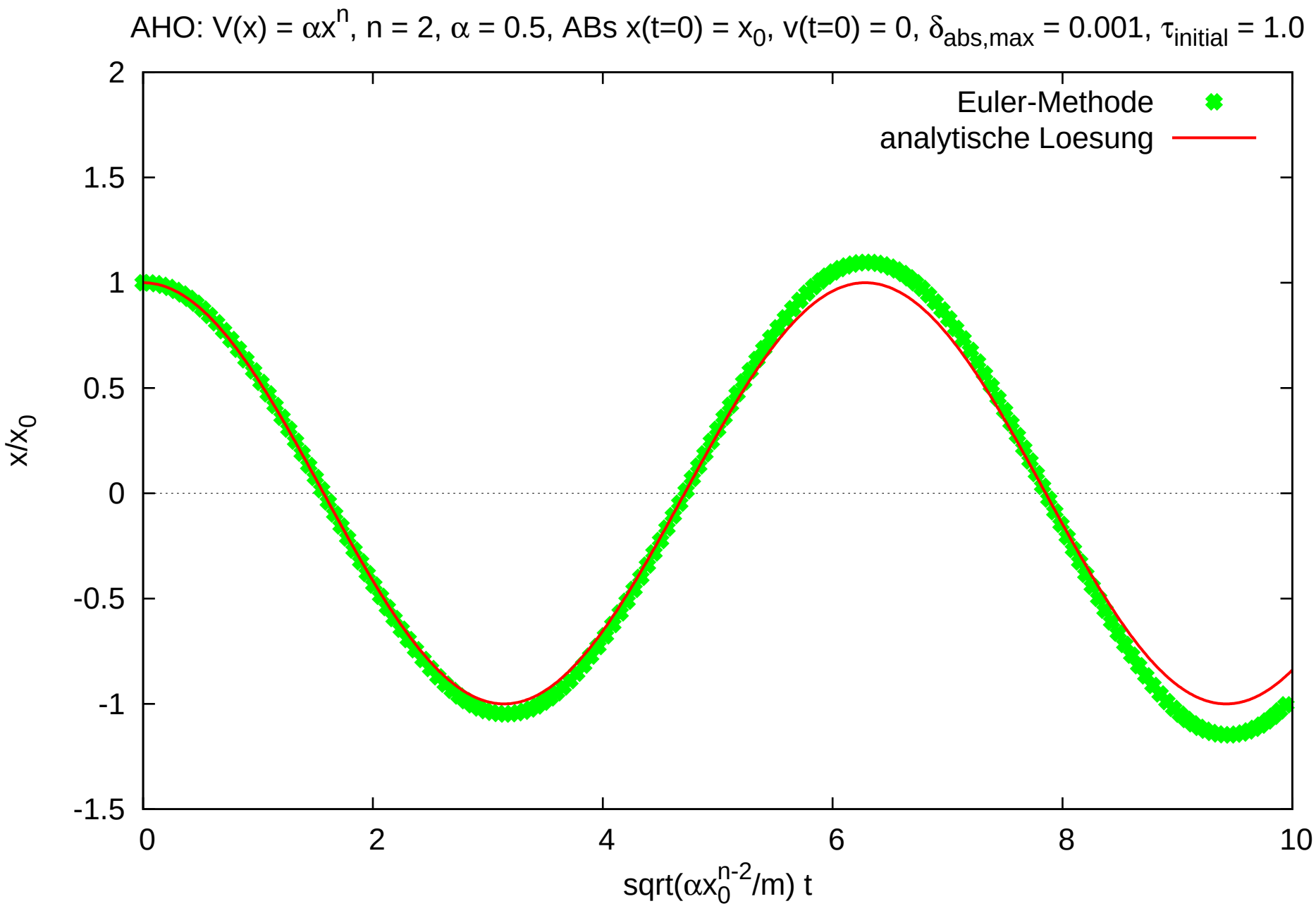
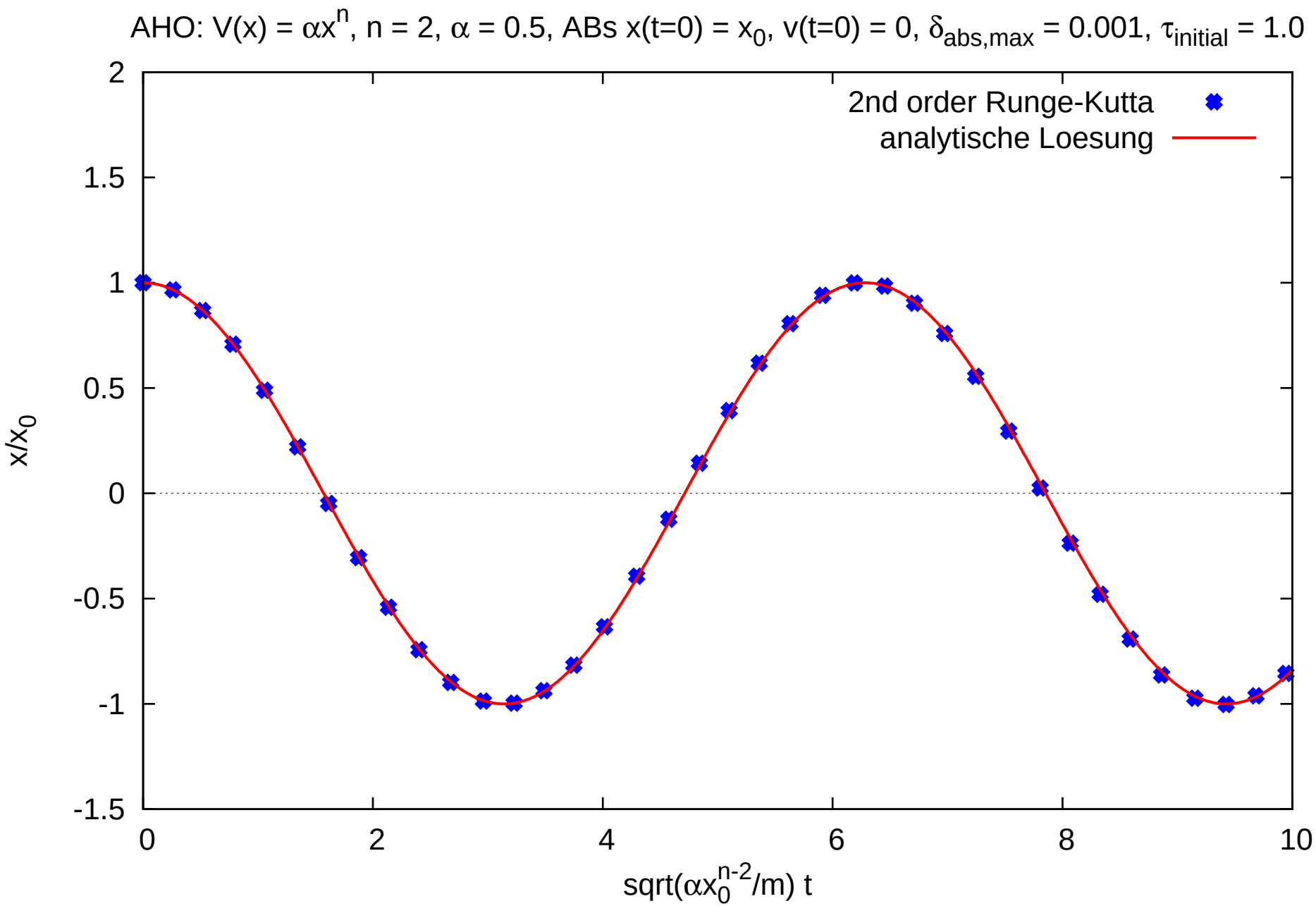
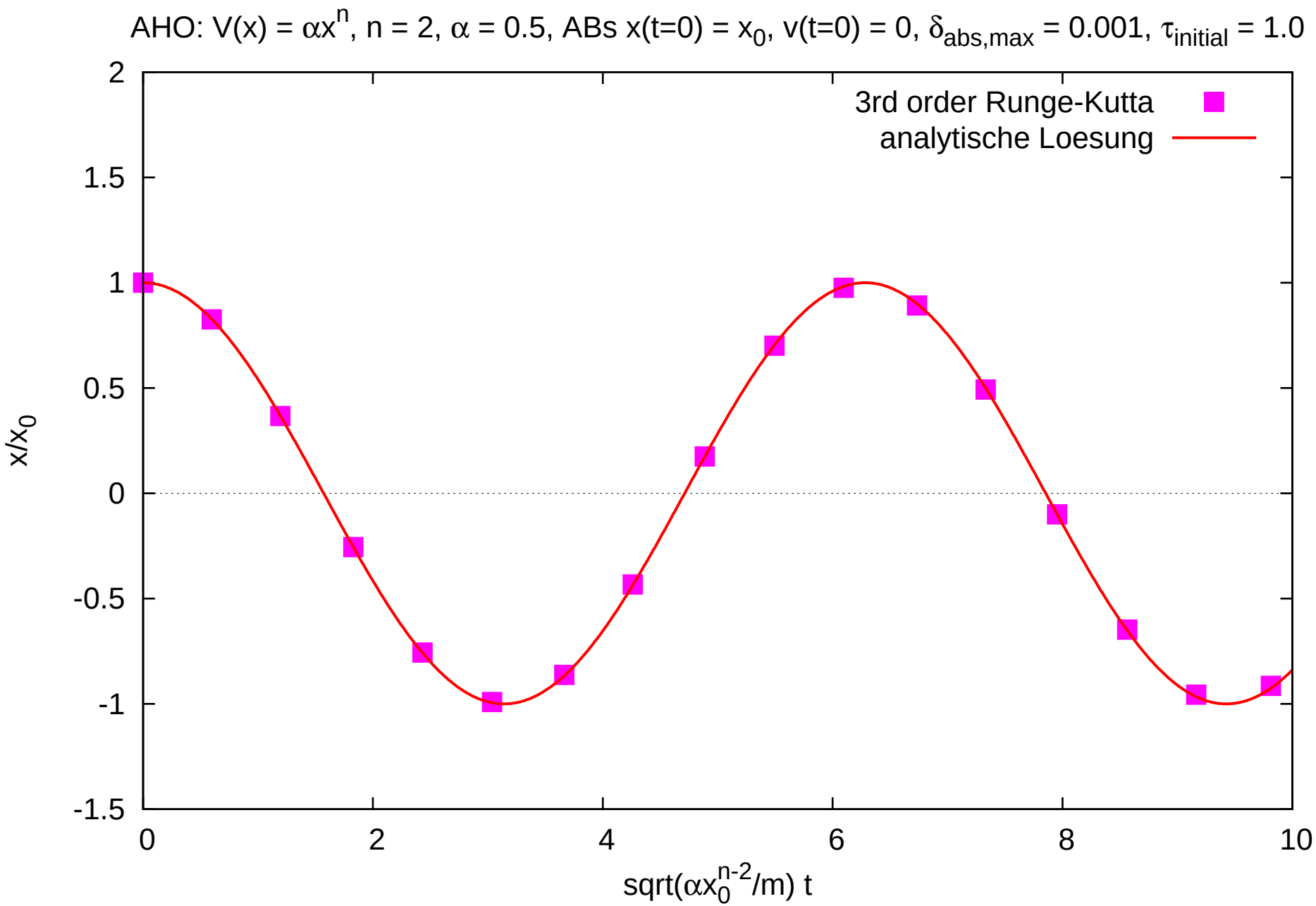
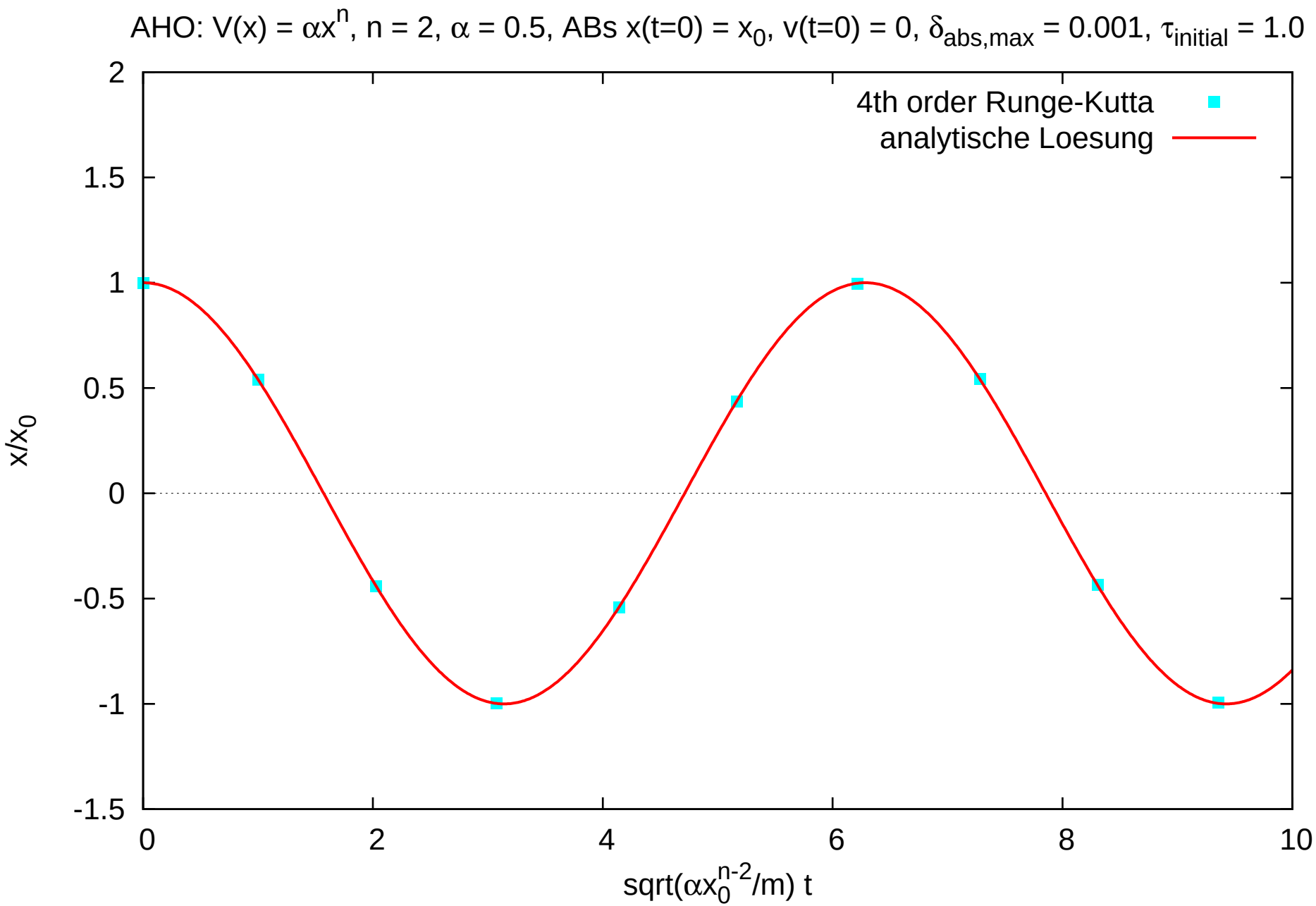
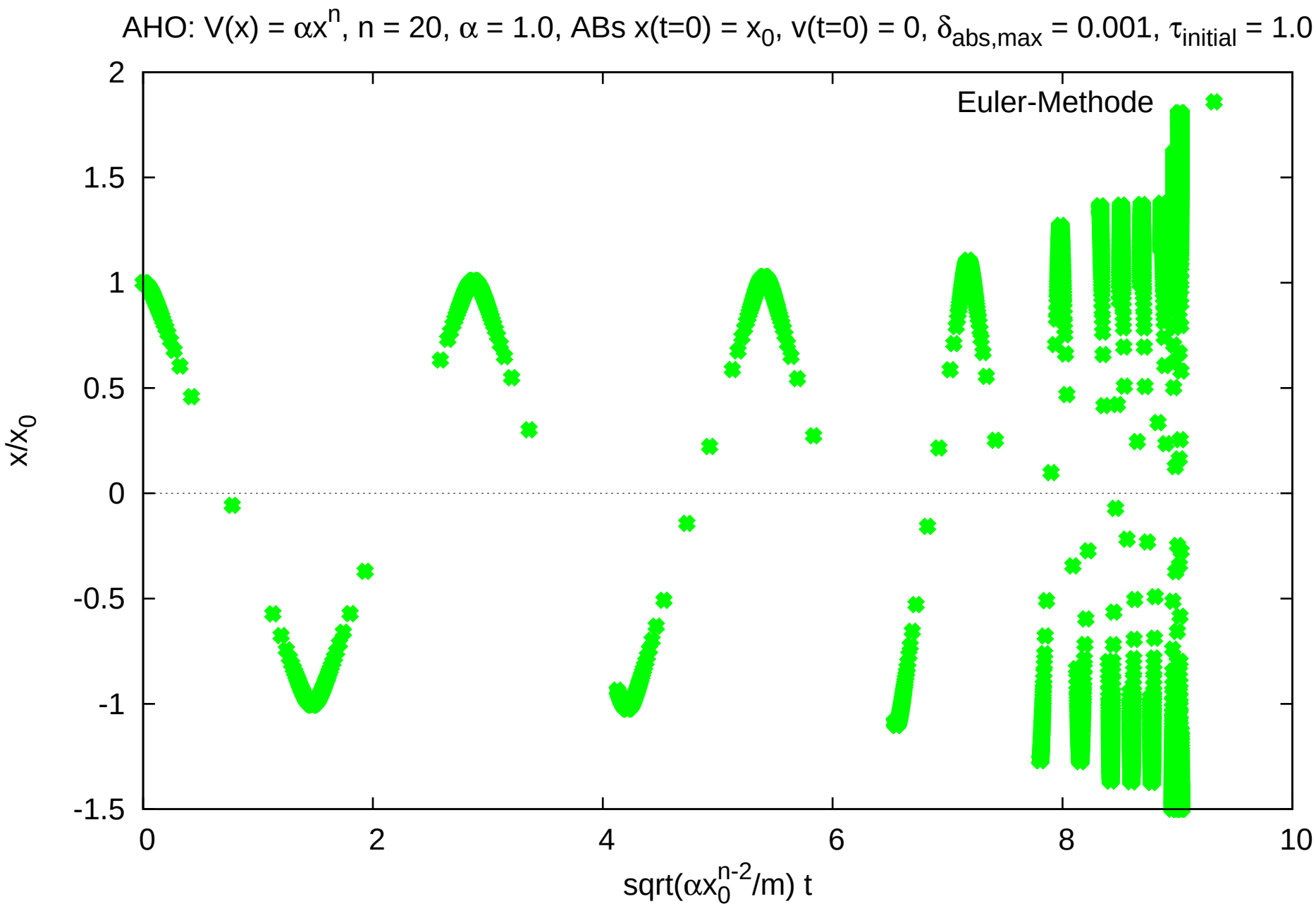
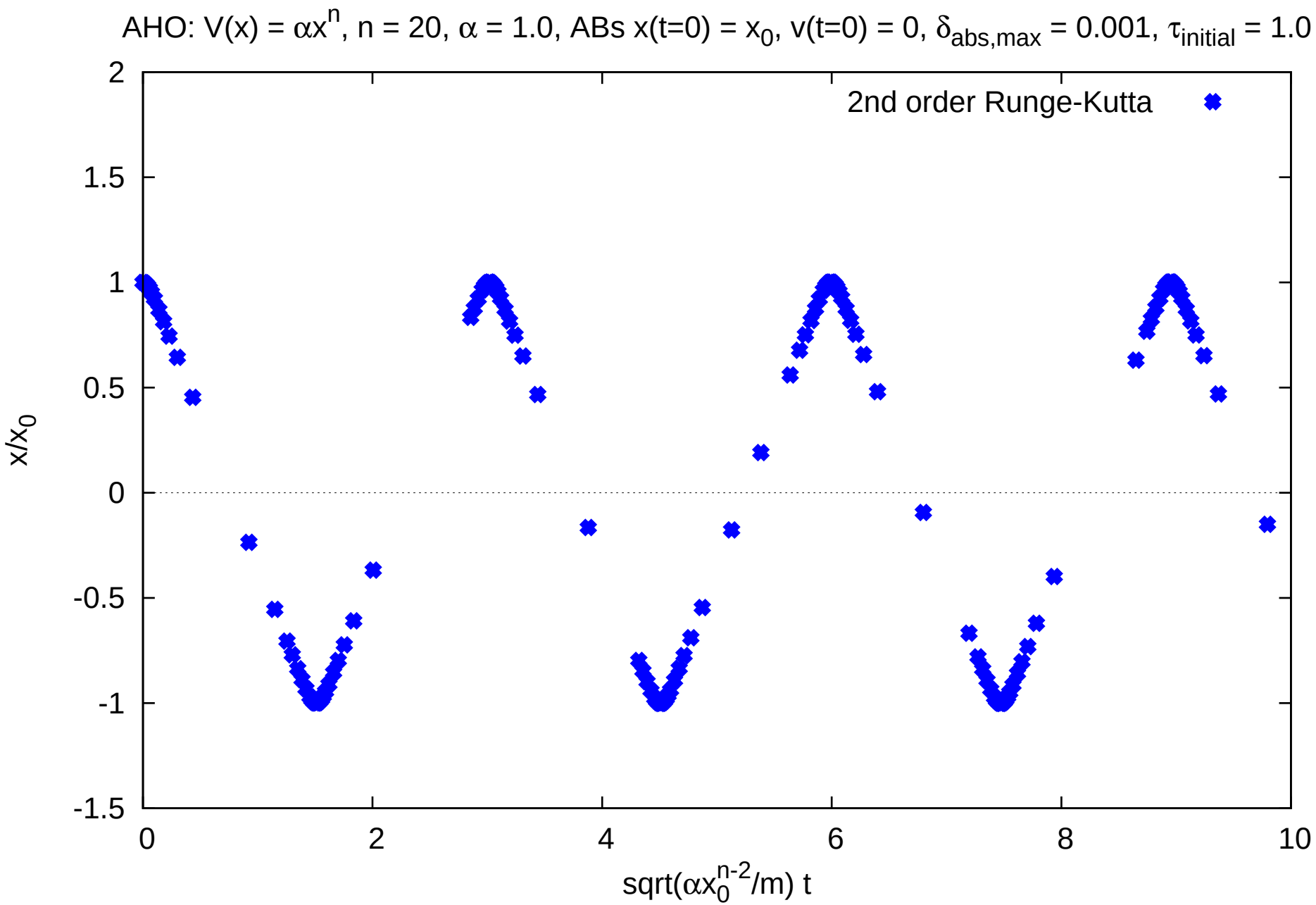

AHO: V(x) = αx^n, n = 2, α = 0.5, ABs x(t=0) = x_0, v(t=0) = 0, δ_abs,max = 0.001, τ_initial = 1.0
Euler-Methode
analytische Loesung
x/x_0
sqrt(αx_0^n-2/m) t
2
1.5
1
0.5
0
-0.5
-1
-1.5
0
2
4
6
8
10

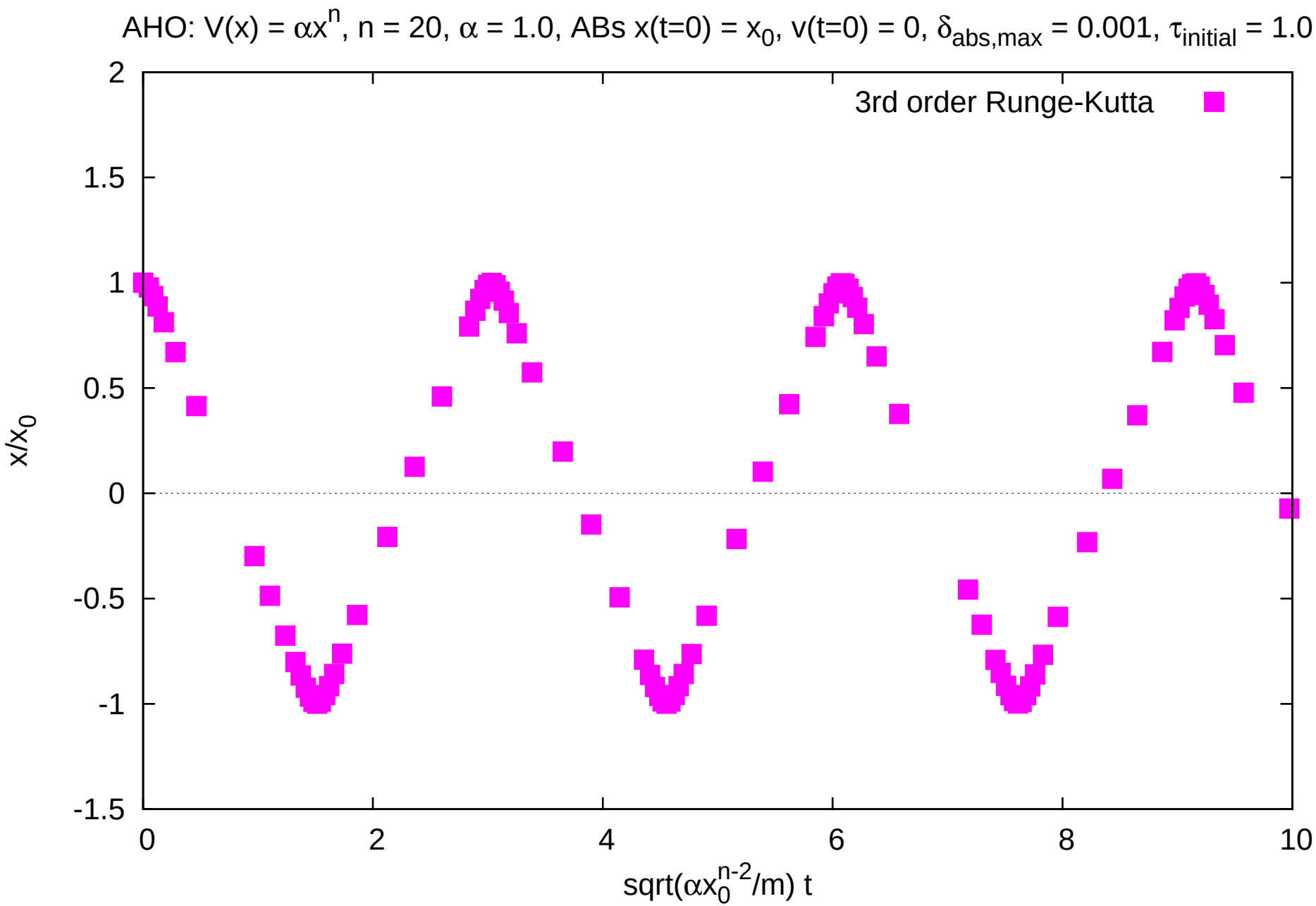

AHO: V(x) = αx^n, n = 2, α = 0.5, ABs x(t=0) = x_0, v(t=0) = 0, δ_abs,max = 0.001, τ_initial = 1.0
2nd order Runge-Kutta
analytische Loesung
x/x_0
sqrt(αx_0^n-2/m) t
2
1.5
1
0.5
0
-0.5
-1
-1.5
0
2
4
6
8
10

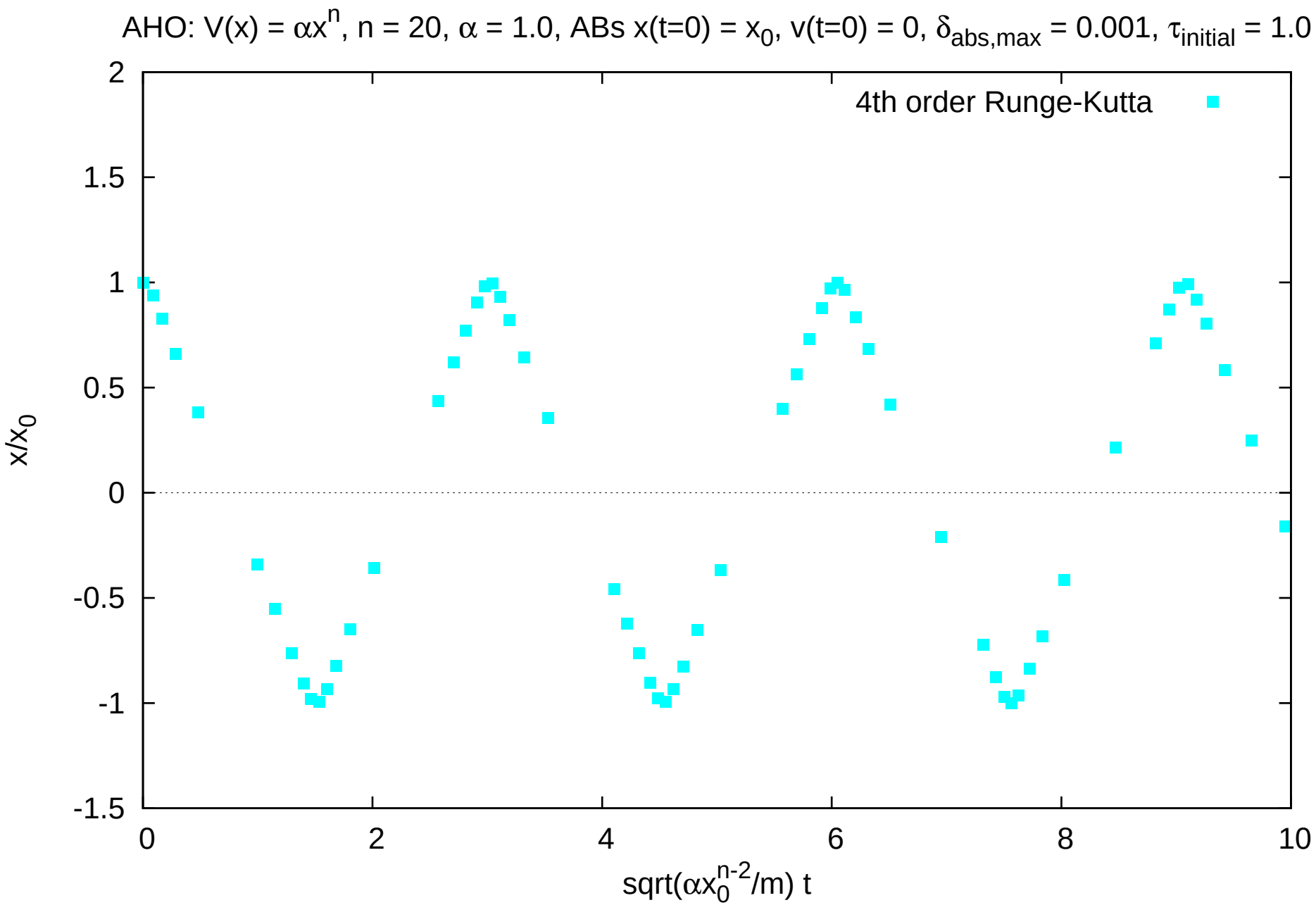

AHO: V(x) = αx^n, n = 2, α = 0.5, ABs x(t=0) = x_0, v(t=0) = 0, δ_abs,max = 0.001, τ_initial = 1.0
3rd order Runge-Kutta
analytische Loesung
x/x_0
sqrt(αx_0^n-2/m) t
2
1.5
1
0.5
0
-0.5
-1
-1.5
0
2
4
6
8
10


AHO: V(x) = αx^n, n = 2, α = 0.5, ABs x(t=0) = x_0, v(t=0) = 0, δ_abs,max = 0.001, τ_initial = 1.0
4th order Runge-Kutta
analytische Loesung
x/x_0
sqrt(αx_0^n-2/m) t
2
1.5
1
0.5
0
-0.5
-1
-1.5
0
2
4
6
8
10


AHO: V(x) = αx^n, n = 20, α = 1.0, ABs x(t=0) = x_0, v(t=0) = 0, δ_abs,max = 0.001, τ_initial = 1.0
Euler-Methode
x/x_0
sqrt(αx_0^n-2/m) t
2
1.5
1
0.5
0
-0.5
-1
-1.5
0
2
4
6
8
10


AHO: V(x) = αx^n, n = 20, α = 1.0, ABs x(t=0) = x_0, v(t=0) = 0, δ_abs,max = 0.001, τ_initial = 1.0
2nd order Runge-Kutta
x/x_0
sqrt(αx_0^n-2/m) t
2
1.5
1
0.5
0
-0.5
-1
-1.5
0
2
4
6
8
10


AHO: V(x) = αx^n, n = 20, α = 1.0, ABs x(t=0) = x_0, v(t=0) = 0, δ_abs,max = 0.001, τ_initial = 1.0
3rd order Runge-Kutta
x/x_0
sqrt(αx_0^n-2/m) t
2
1.5
1
0.5
0
-0.5
-1
-1.5
0
2
4
6
8
10


AHO: V(x) = αx^n, n = 20, α = 1.0, ABs x(t=0) = x_0, v(t=0) = 0, δ_abs,max = 0.001, τ_initial = 1.0
4th order Runge-Kutta
x/x_0
sqrt(αx_0^n-2/m) t
2
1.5
1
0.5
0
-0.5
-1
-1.5
0
2
4
6
8
10