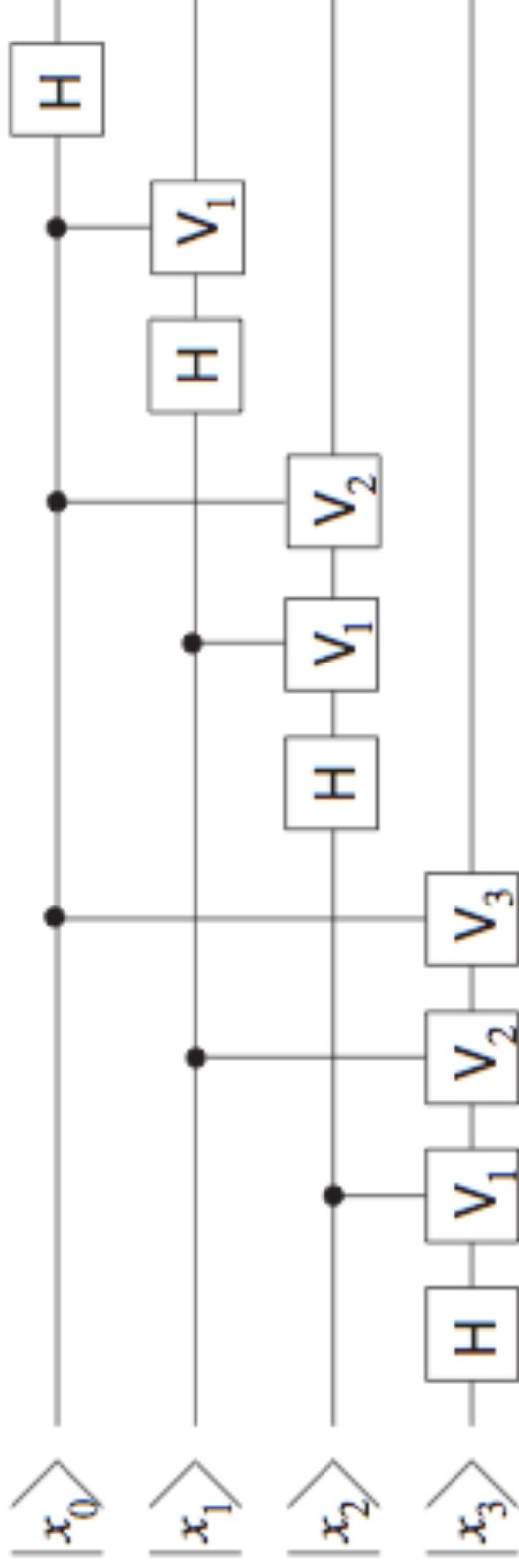


quantum Fourier transform

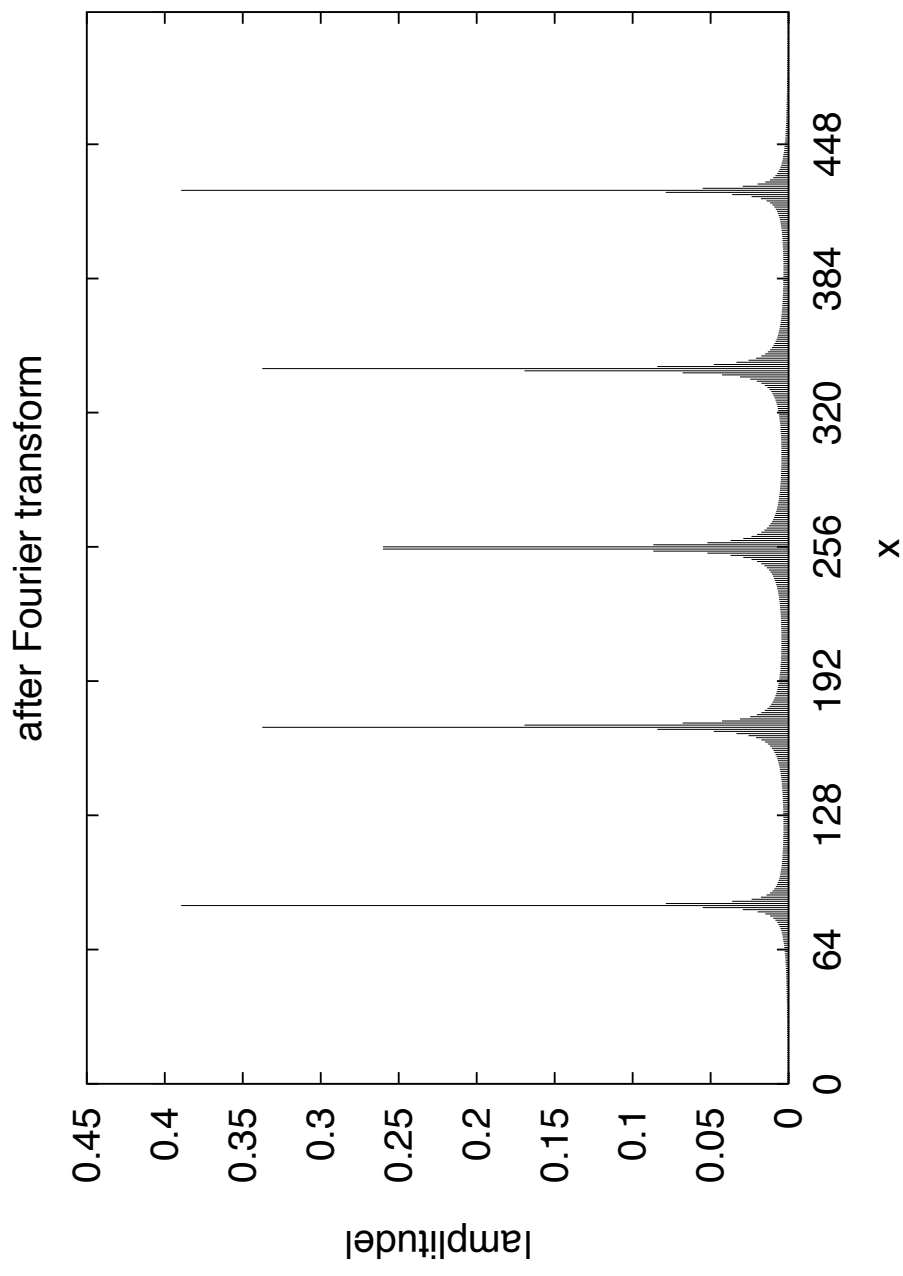
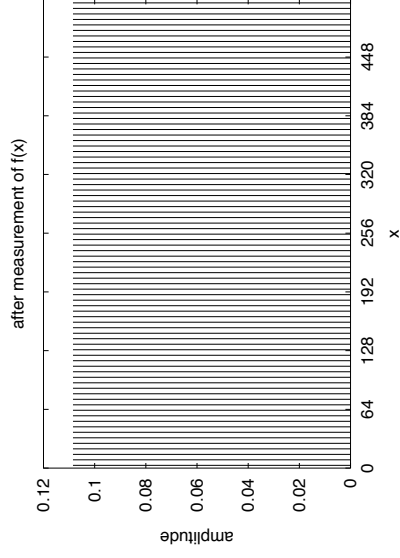


$$V_n|0\rangle = |0\rangle$$

$$V_n|1\rangle = e^{i\pi/2^n}|1\rangle$$

Shor Algorithmus

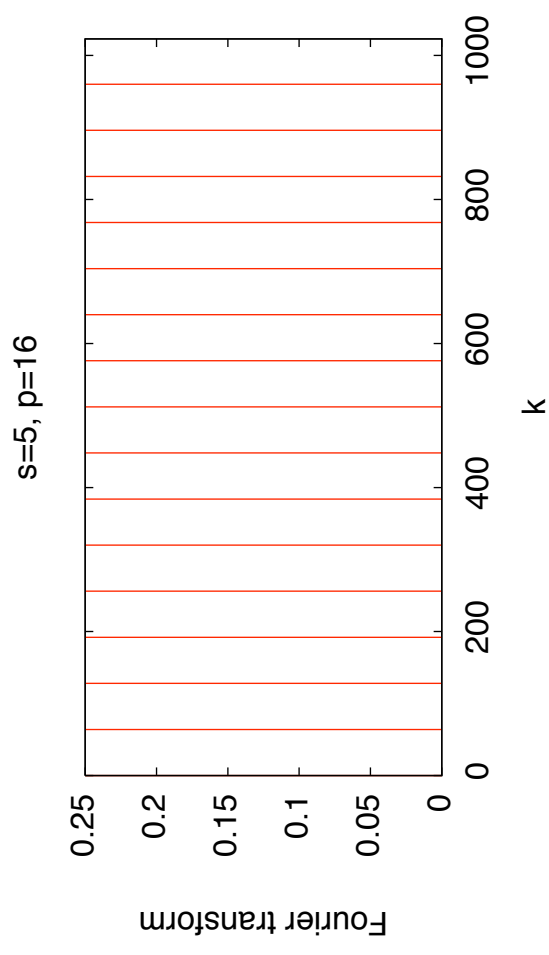
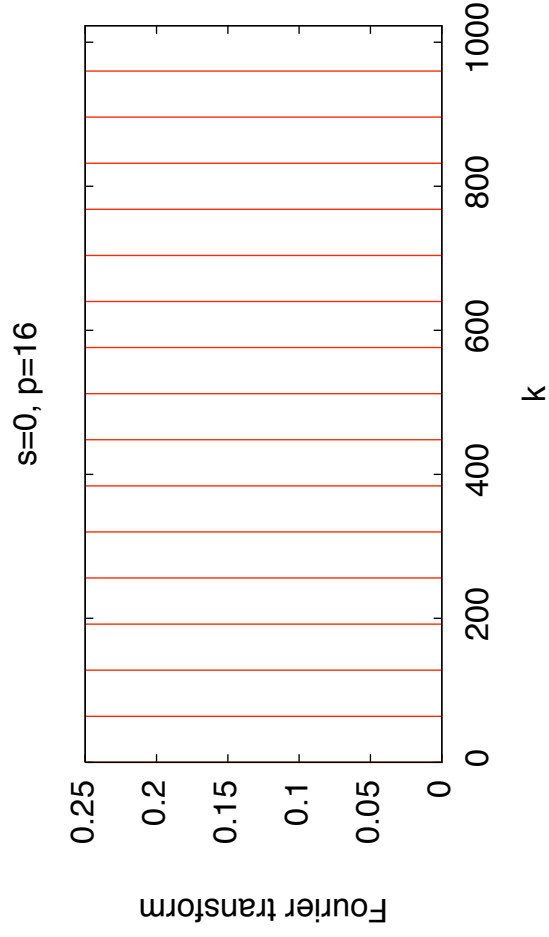
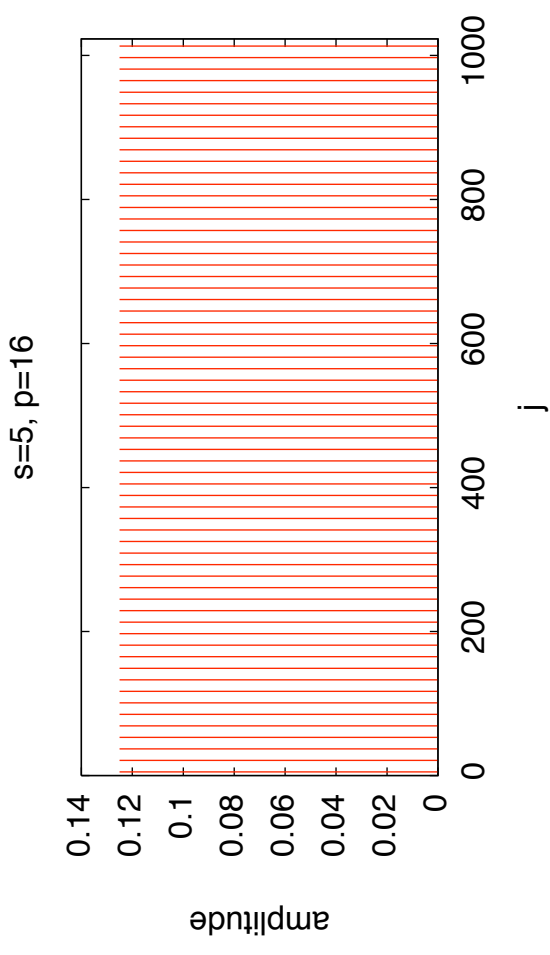
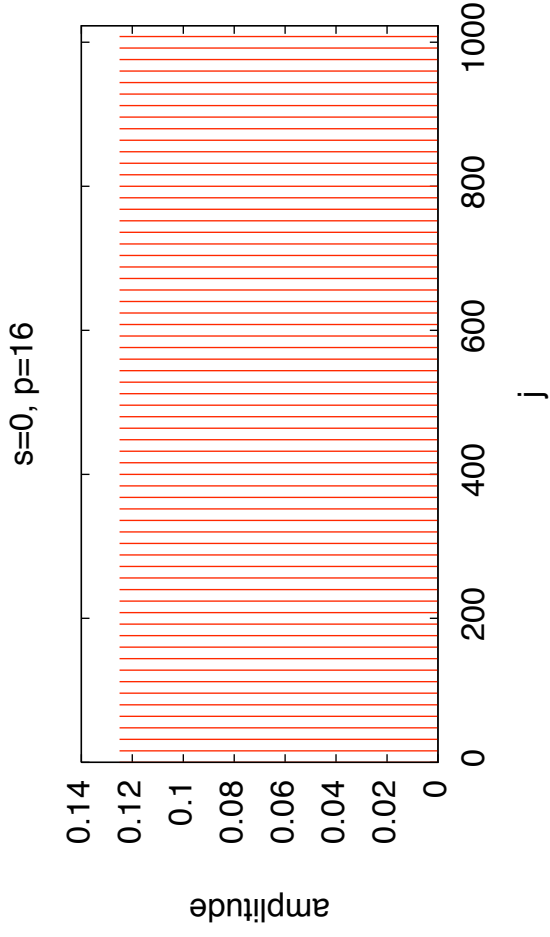
$M=21$, $a=11$
gemessen $f(x)=8$



Faktorisierung von $M=21$

- a= 1, M=21: r=1
- a= 2, M=21: r=6, ggT(7, 21)=7, ggT(9, 21)= 3
- a= 3, M=21: Faktor aus ggT: 3
- a= 4, M=21: r=3
- a= 5, M=21: r=6, ggT(124, 21)=1, ggT(126, 21)=21
- a= 6, M=21: Faktor aus ggT: 3
- a= 7, M=21: Faktor aus ggT: 7
- a= 8, M=21: r=2, ggT(7, 21)=7, ggT(9, 21)= 3
- a= 9, M=21: Faktor aus ggT: 3
- a=10, M=21: r=6, ggT(999, 21)=3, ggT(1001, 21)= 7
- a=11, M=21: r=6, ggT(1330, 21)=7, ggT(1332, 21)= 3
- a=12, M=21: Faktor aus ggT: 3
- a=13, M=21: r=2, ggT(12, 21)=3, ggT(14, 21)= 7
- a=14, M=21: Faktor aus ggT: 7
- a=15, M=21: Faktor aus ggT: 3
- a=16, M=21: r=3
- a=17, M=21: r=6, ggT(4912, 21)=1, ggT(4914, 21)=21
- a=18, M=21: Faktor aus ggT: 3
- a=19, M=21: r=6, ggT(6858, 21)=3, ggT(6860, 21)= 7
- a=20, M=21: r=2, ggT(19, 21)=1, ggT(21, 21)=21

diskrete Fourier Transformation



diskrete Fourier Transformation

