**Отчёт по лабораторной работе № 4**

**по курсу “Распознавание образов”**

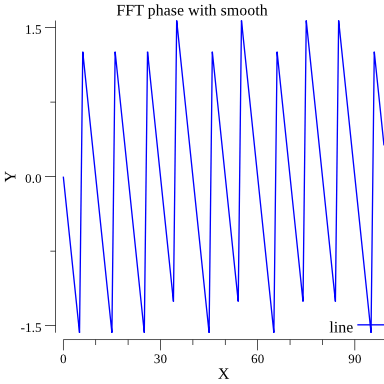
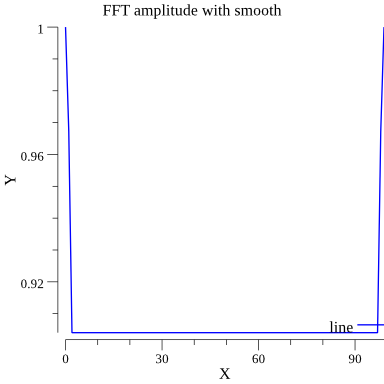
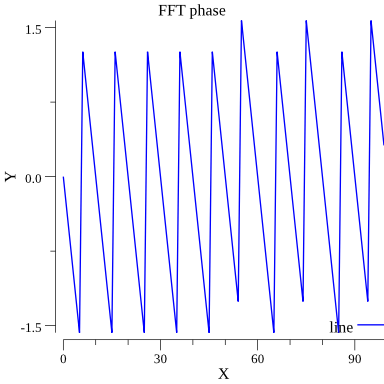
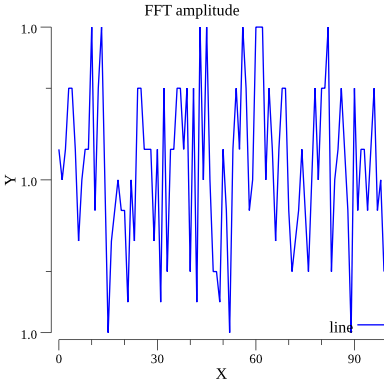
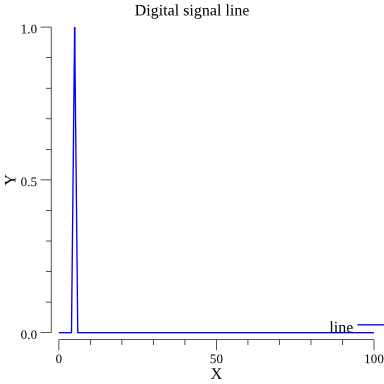
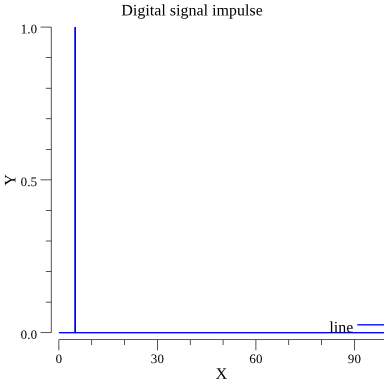
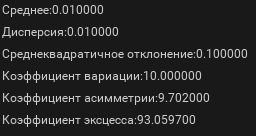
**Выполнил: Глущенко Д. А. Б8403а**

**Тема:** *Цифровая обработка сигналов. Моделирование и графическое отображение типовых детерминированных и случайных цифровых сигналов. Фурье-преобразование непрерывных и дискретных сигналов. Дискретное преобразование Фурье (ДПФ) и быстрое преобразование Фурье (БПФ). Расчет элементарных статистик цифровых сигналов. Корреляционно-спектральный анализ случайных сигналов.*

Задержанный единичный импульс



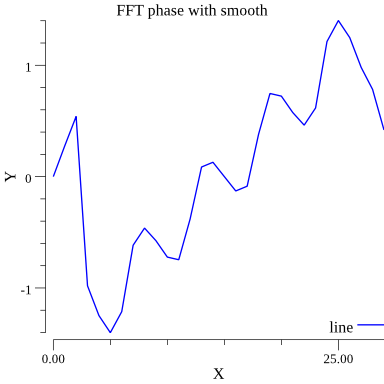
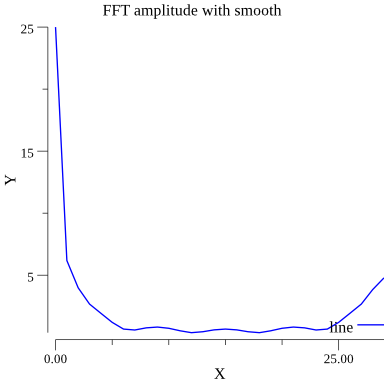
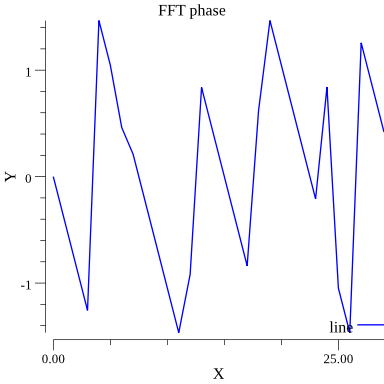
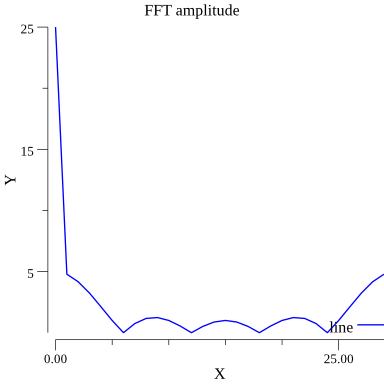
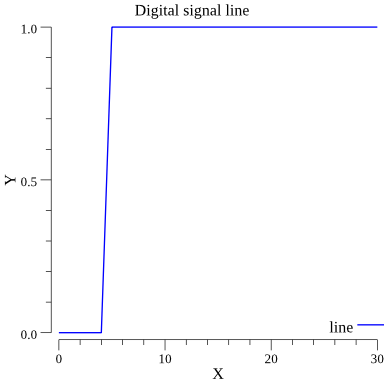
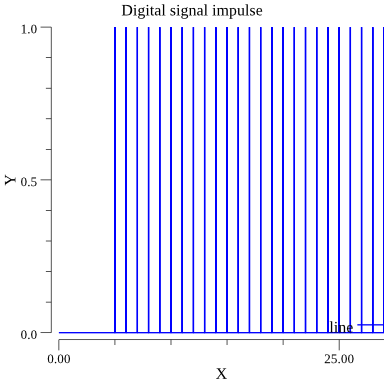
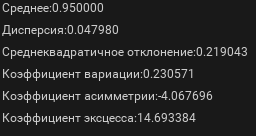
n0 = 5



Задержанный единичный скачок



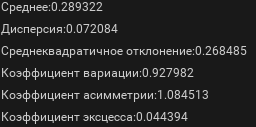
n0 = 5



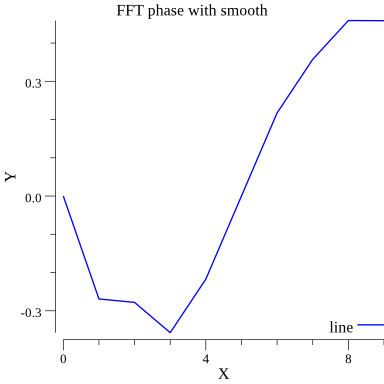
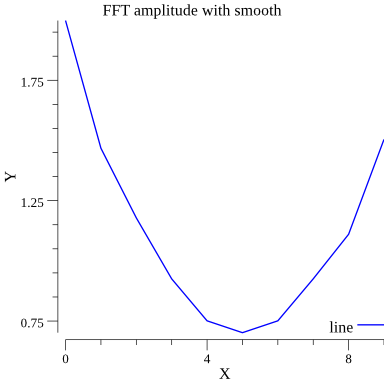
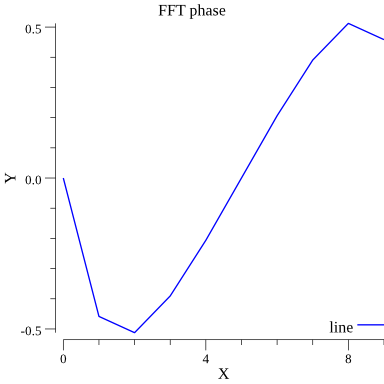
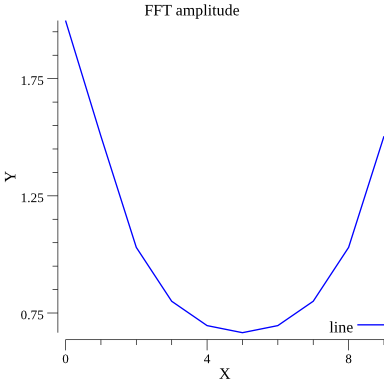
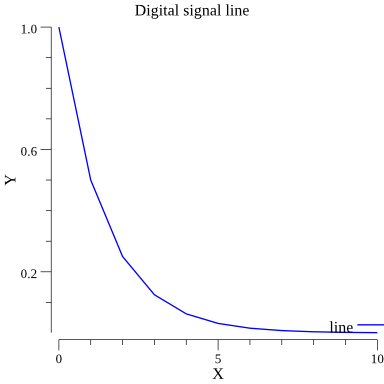
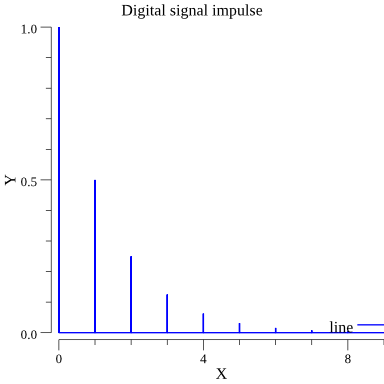
Дискретизированная убывающая экспонента



n=0.5



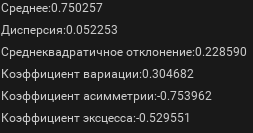
n

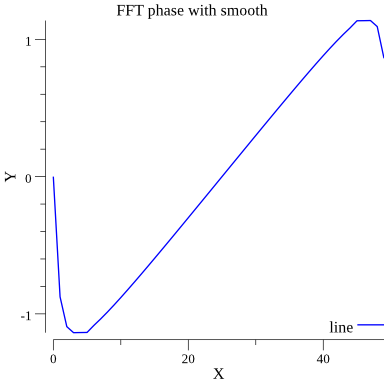
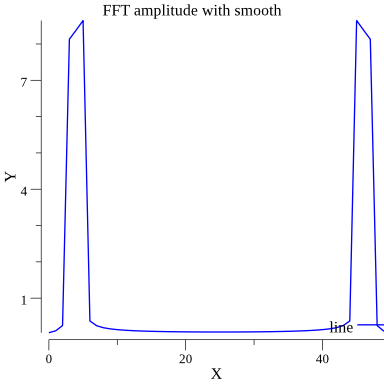
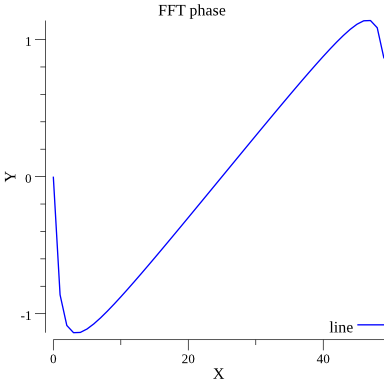
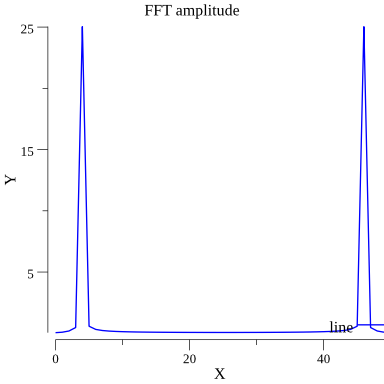
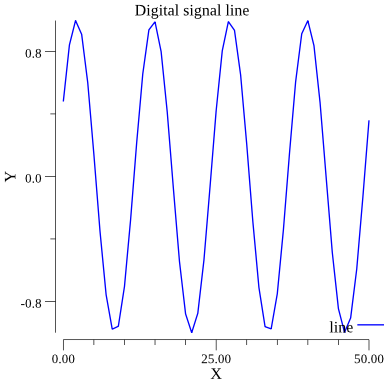
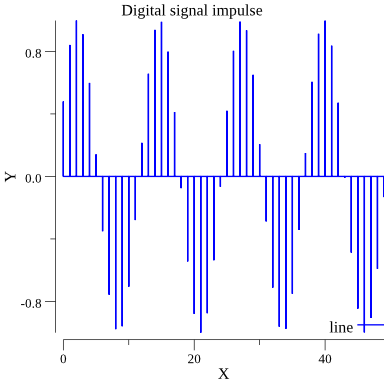


Дискретизированная синусоида



a = 1, w = 0.5, phi = 0.5

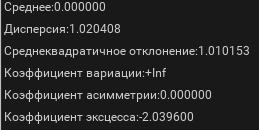


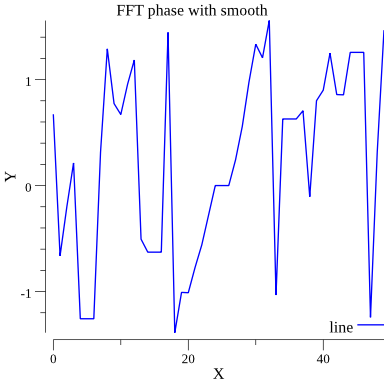
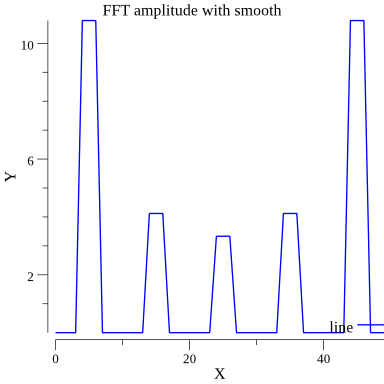
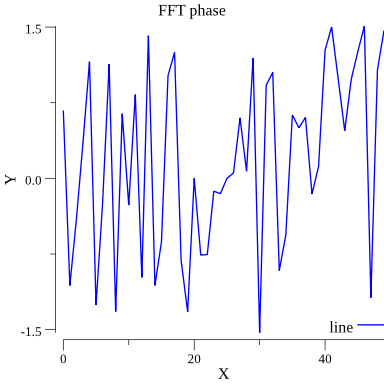
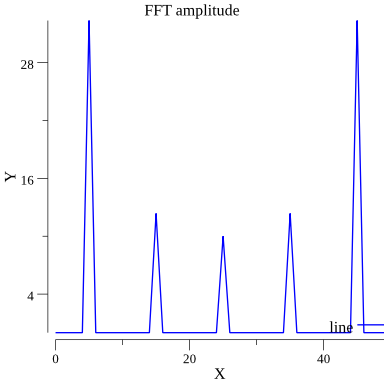
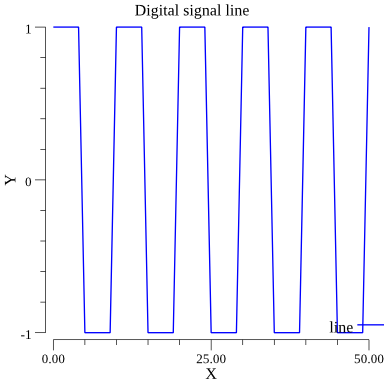
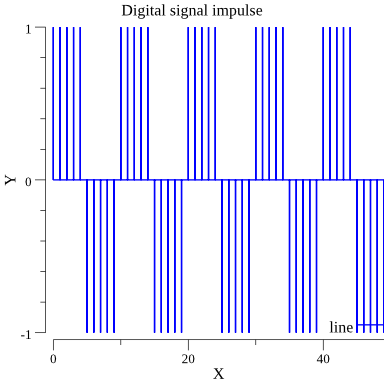


Мефндр



L = 10

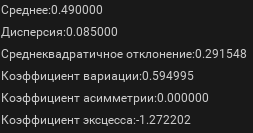


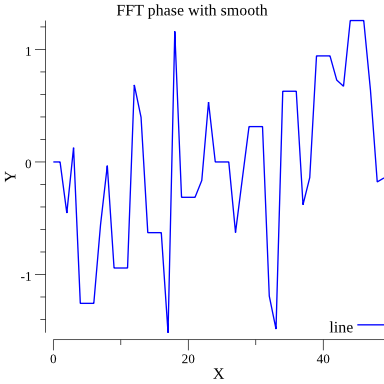
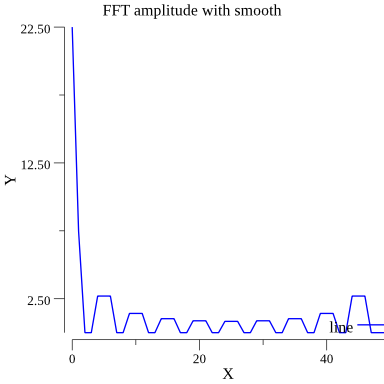
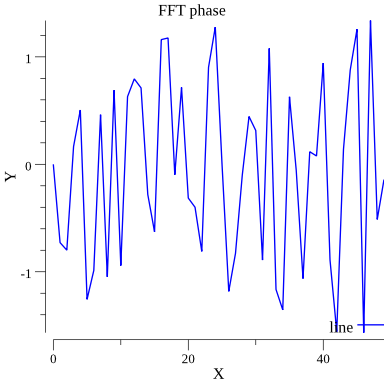
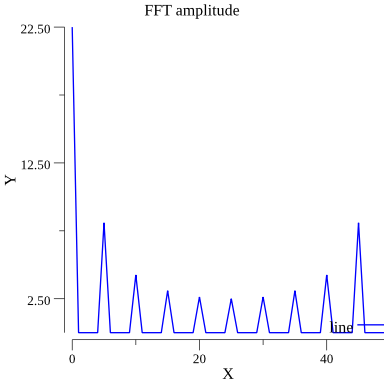
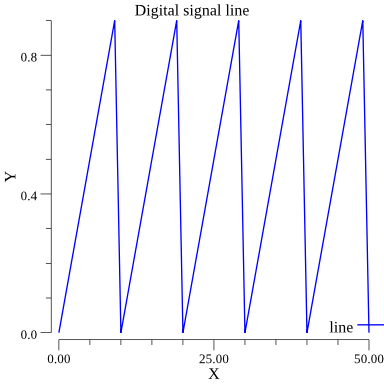
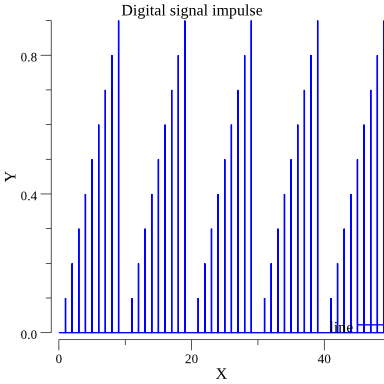


Пила



L = 10

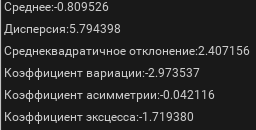


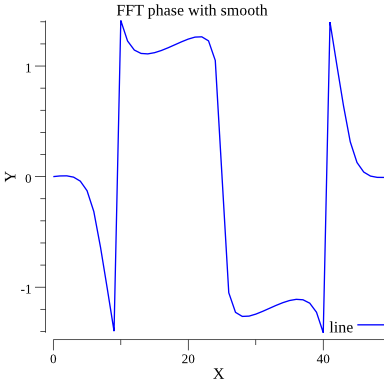
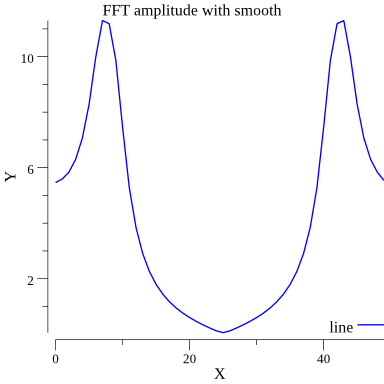
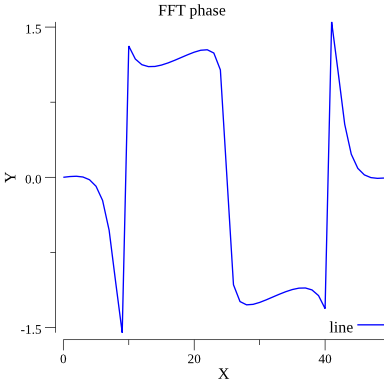
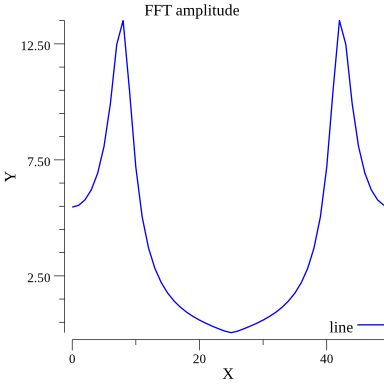
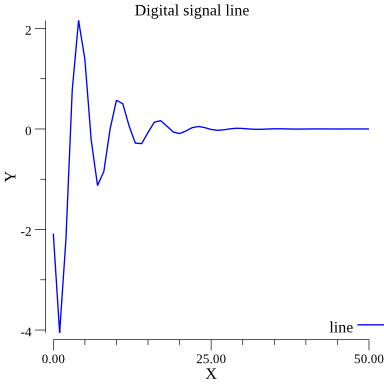
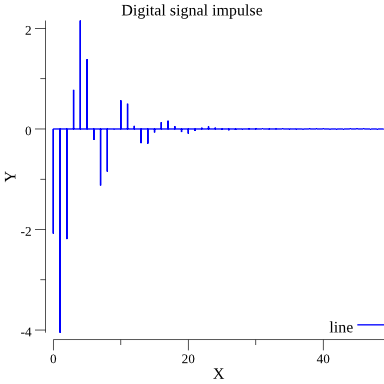


Cигнал с экспоненциальной огибающей - амплитудная модуляция



a=5, tao=5, w=1, fi=2

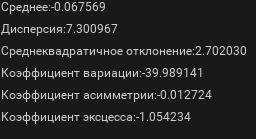


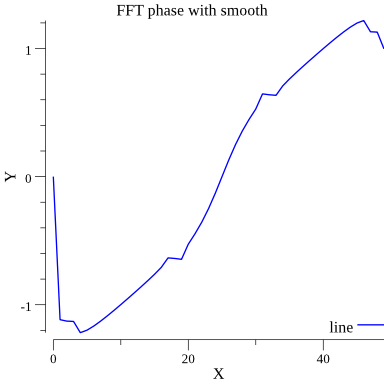
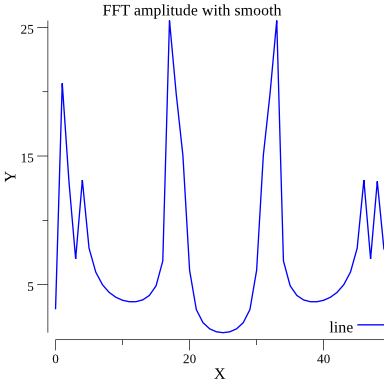
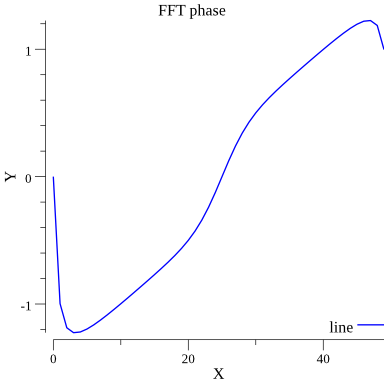
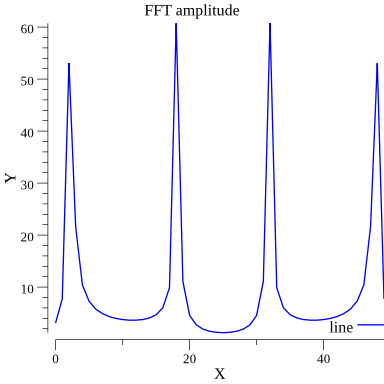
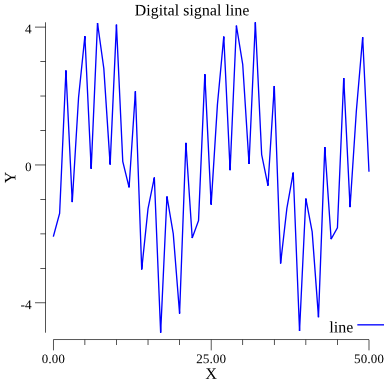
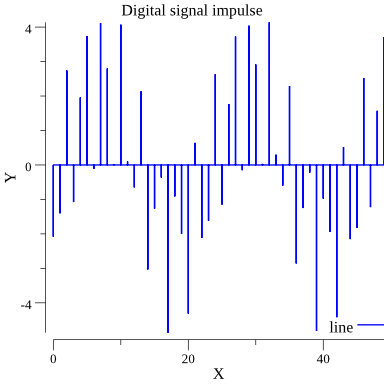


Cигнал с балансной огибающей - амплитудная модуляция



a=5, u=5, w=1, fi=2

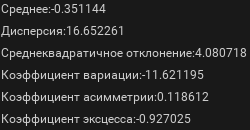


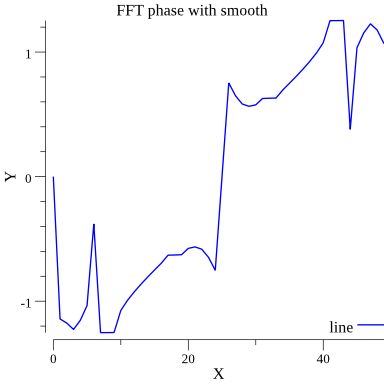
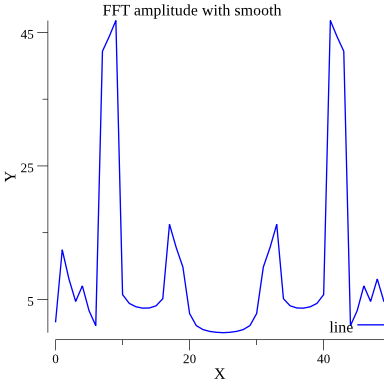
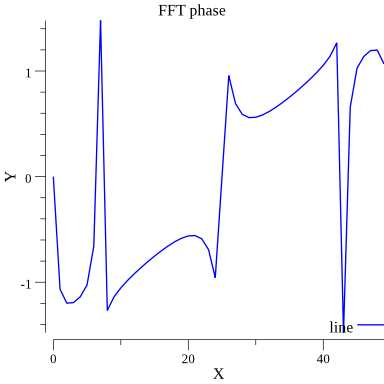
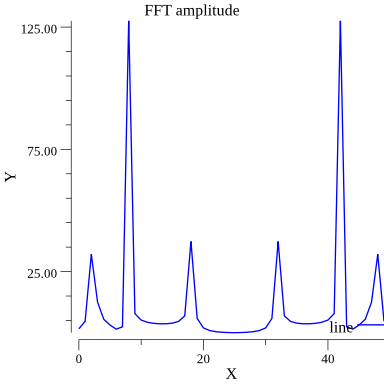
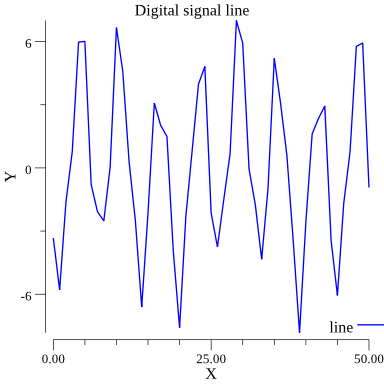
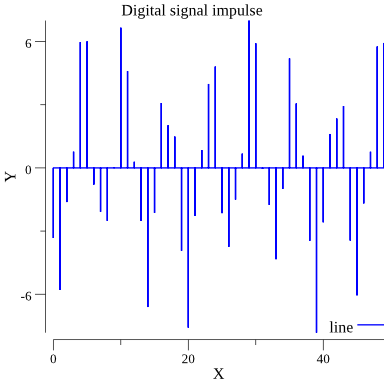


Cигнал с тональной огибающей. - амплитудная модуляция



a=5, u=5, w=1, fi=2, m=0.6

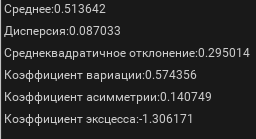


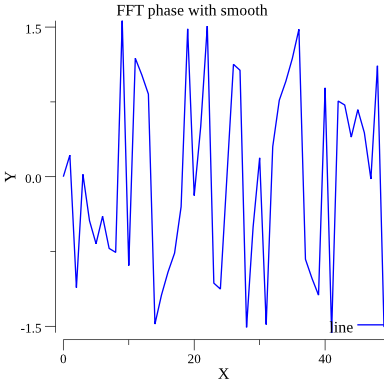
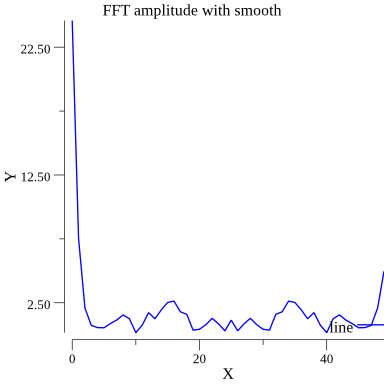
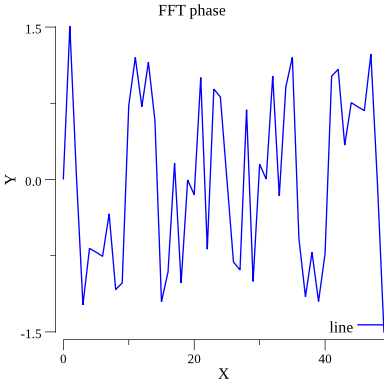
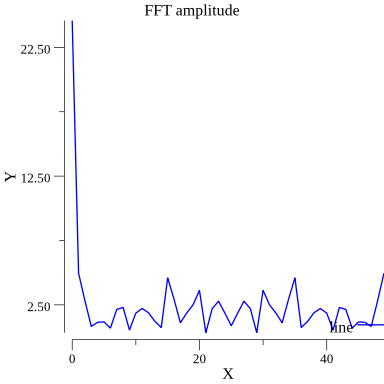
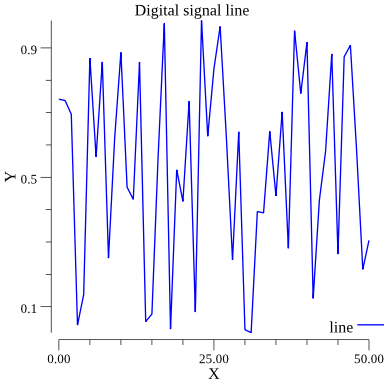
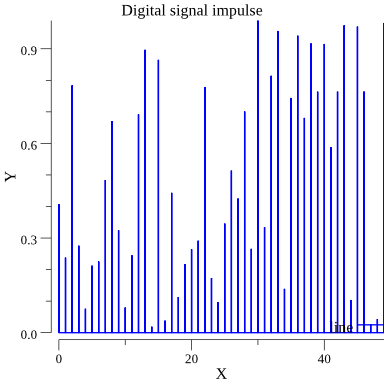


Cигнал белого шума, равномерно распределенного в интервале [a,b] :



a=0, b=1

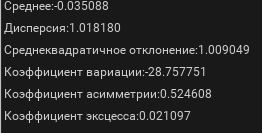


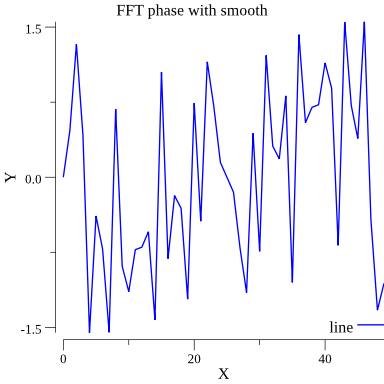
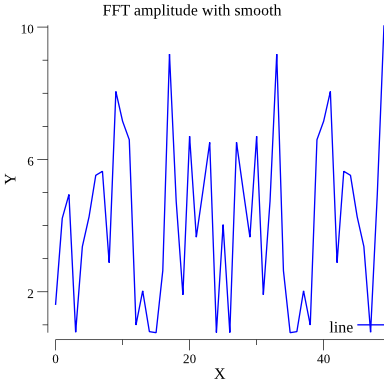
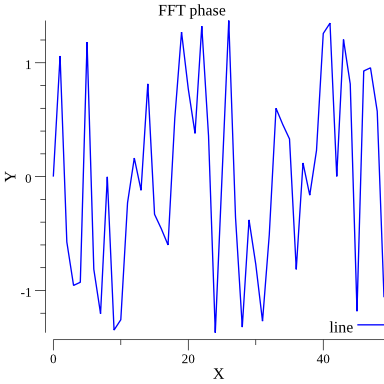
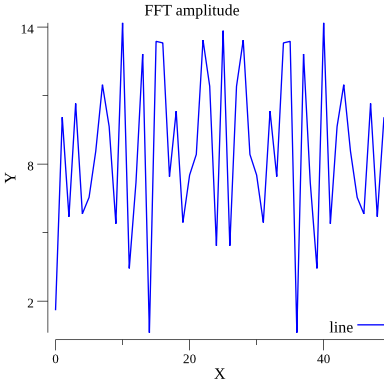
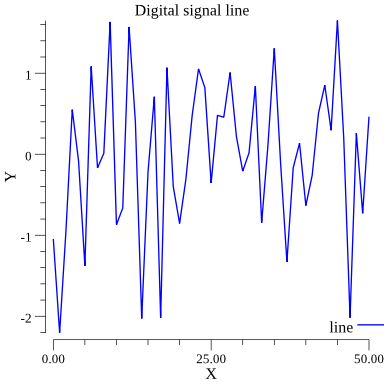
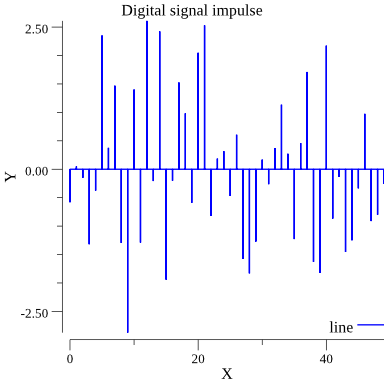


Cигнал белого шума, распределенного по нормальному закону с заданными средним  и дисперсией 



a=0. D=1

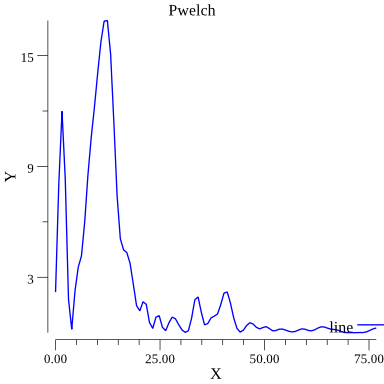
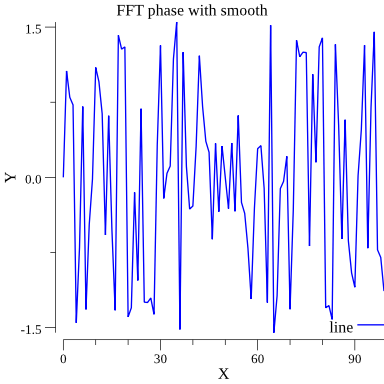
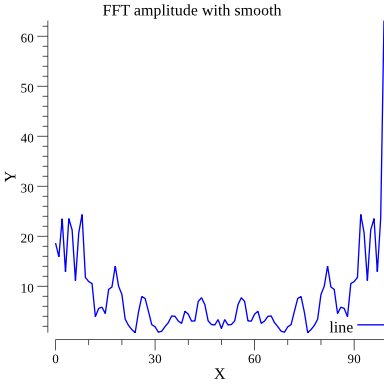
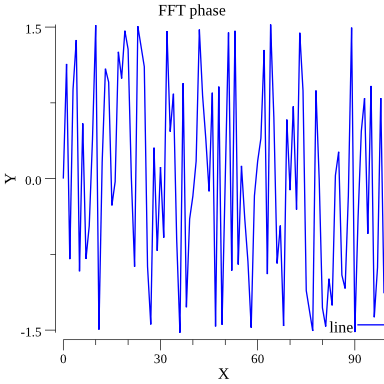
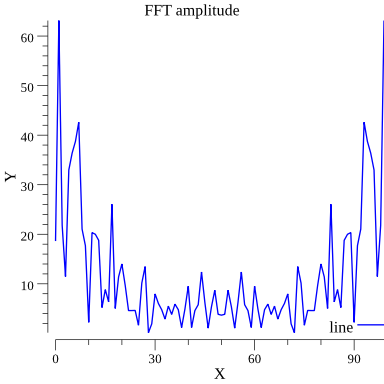
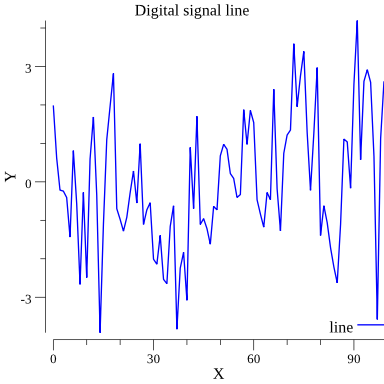
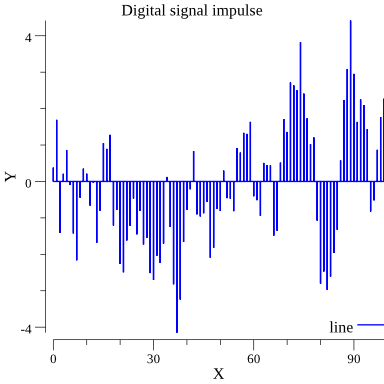




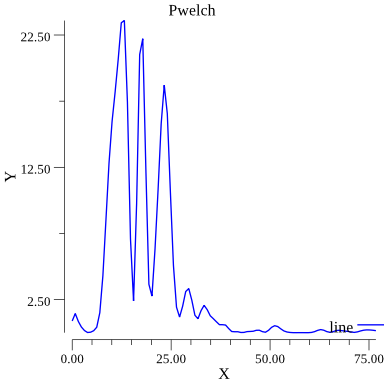
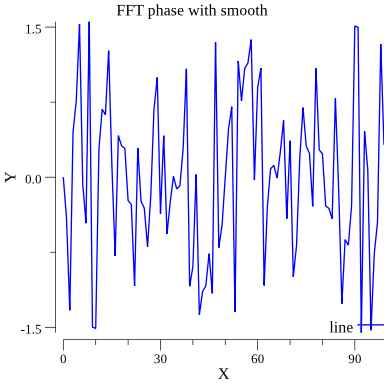
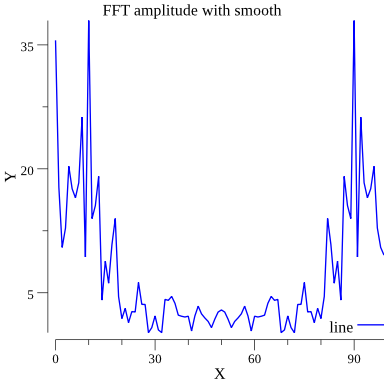
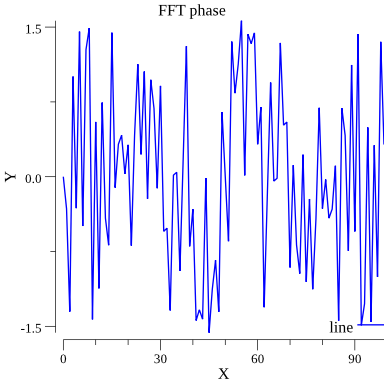
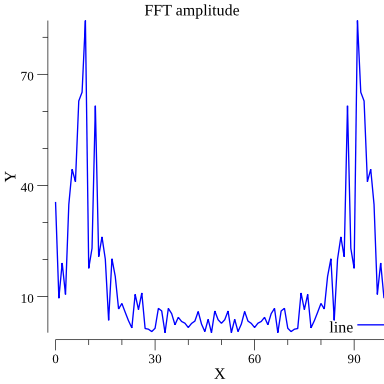
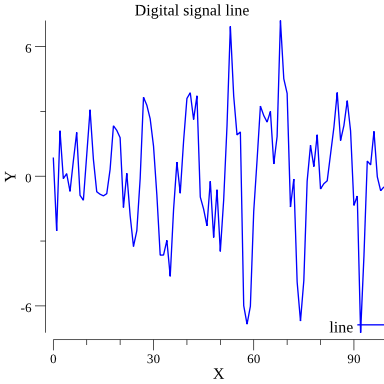
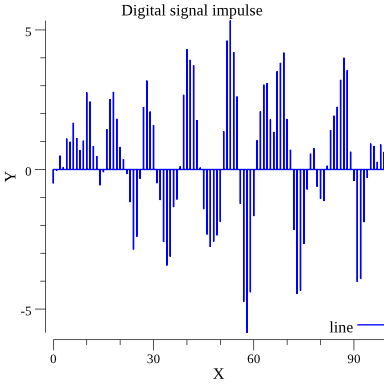
Cлучайный сигнал авторегрессии-скользящего среднего порядка (p,q) – АРСС (p,q)

,

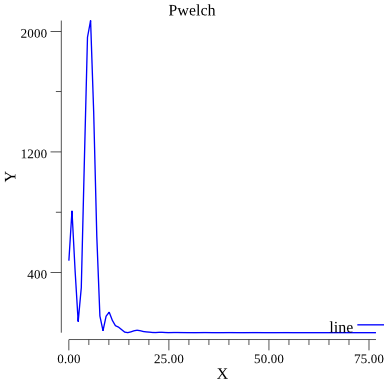
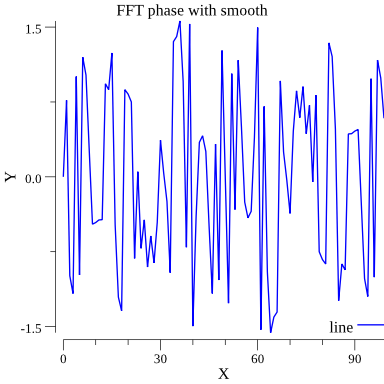
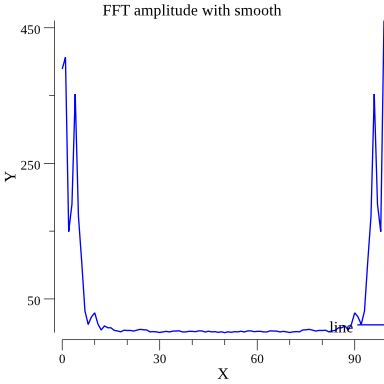
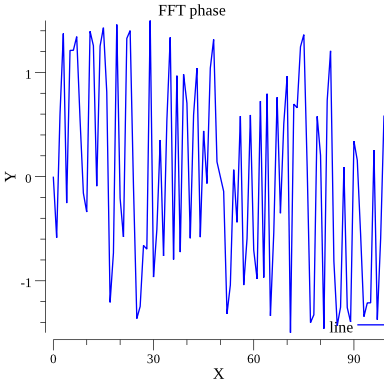
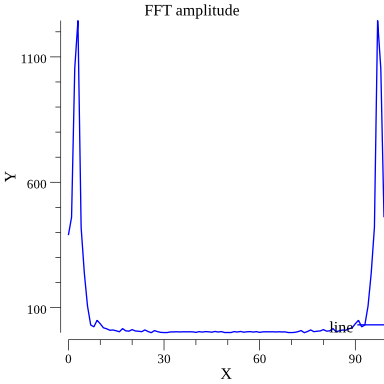
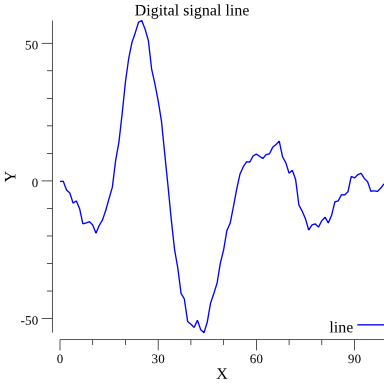
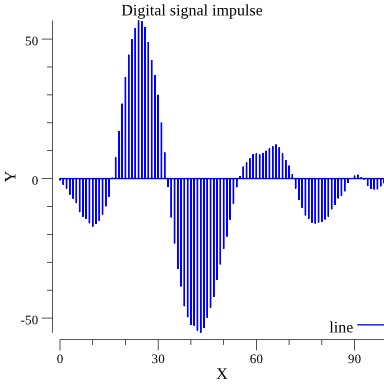
АРСС (2,0) , а={0.68, 0.088};



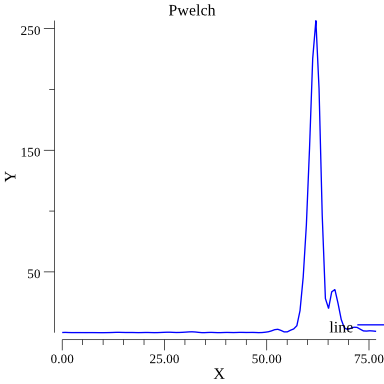
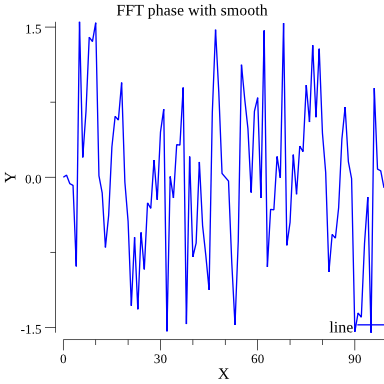
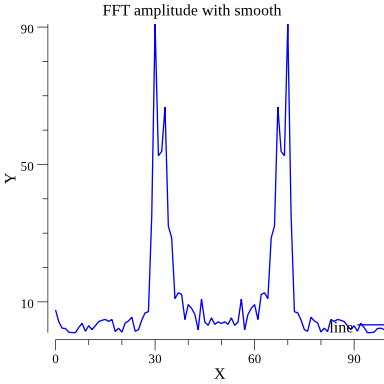
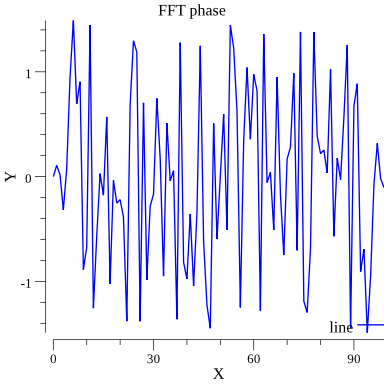
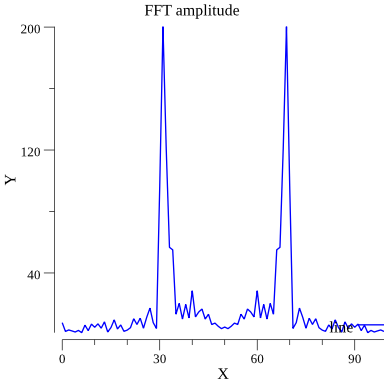
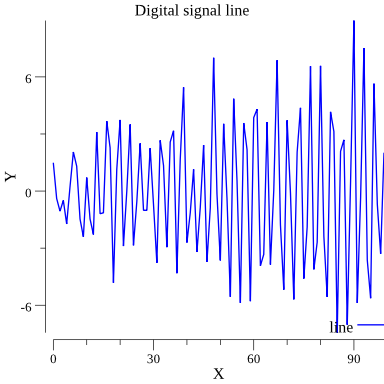
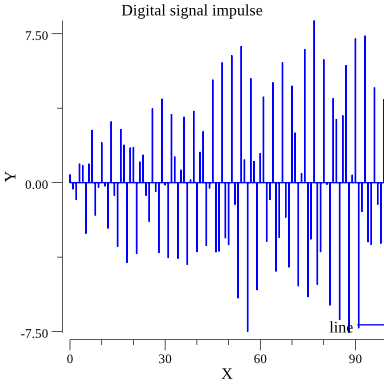
АРСС (2,0) , а={1.656, -0.888};



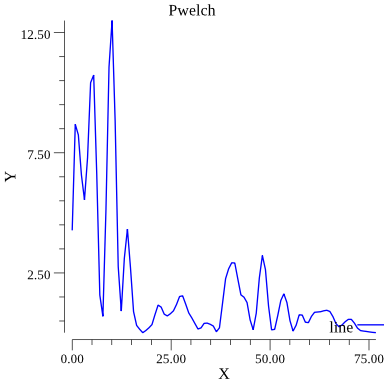
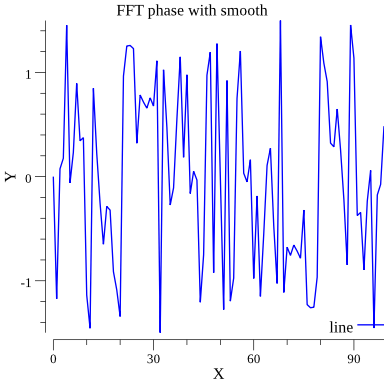
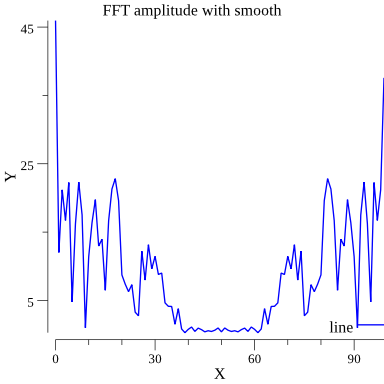
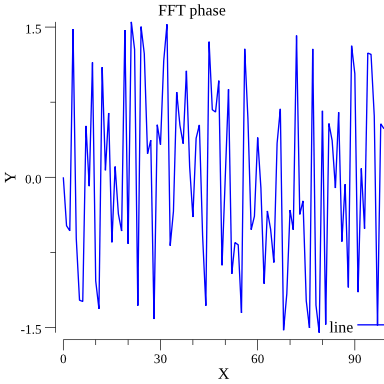
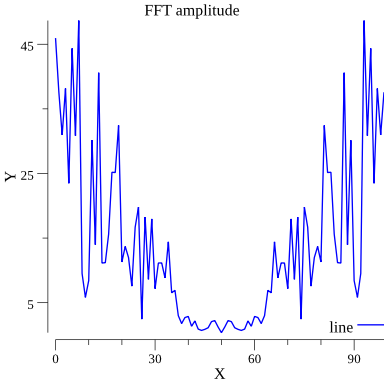
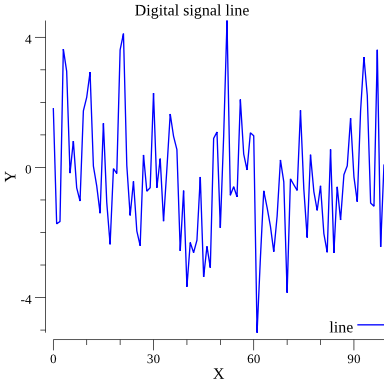
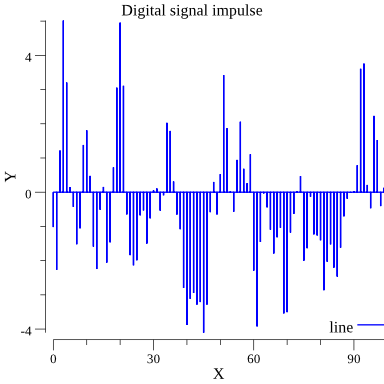
АРСС (2,0) , а={1.944, -0.976};



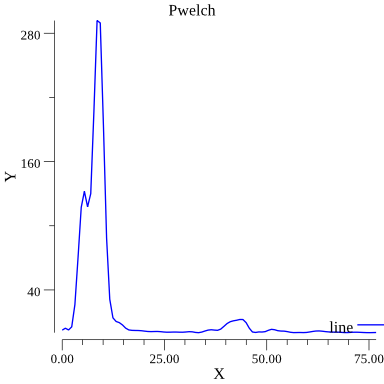
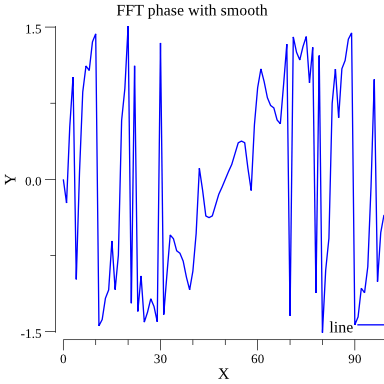
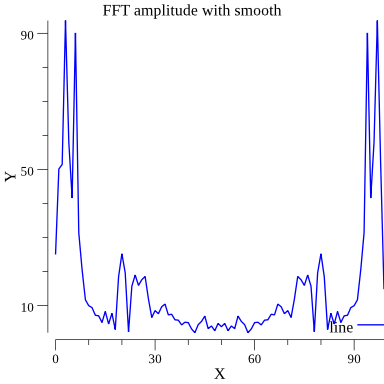
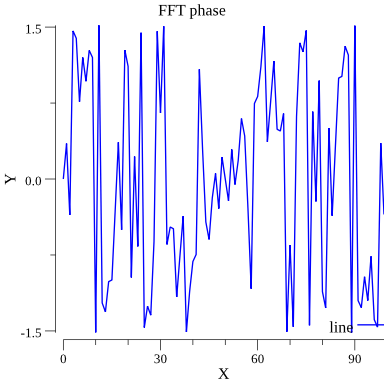
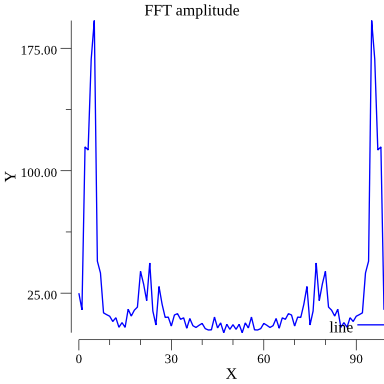
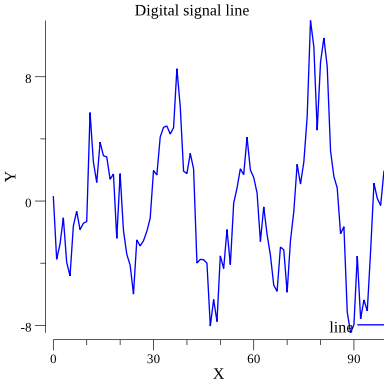
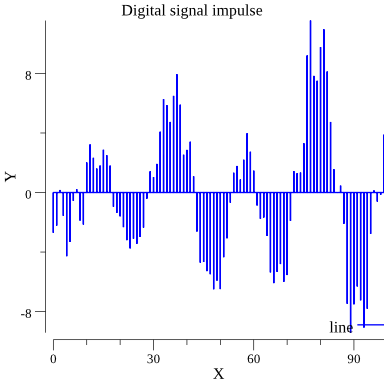
АРСС (2,0) , а={-0.744, -0.96};



АРСС (0,2) , b={1.613, 0.787};



АРСС (4,2) , а={2.34, -2.733, 2.148, -0.863}; b={-1.12, 0.592};



АРСС (6,3) , а={4.167, -7.940, 9.397, -7.515, 3.752, -0.862}; b={-2.28, 1.77, -0.472};

