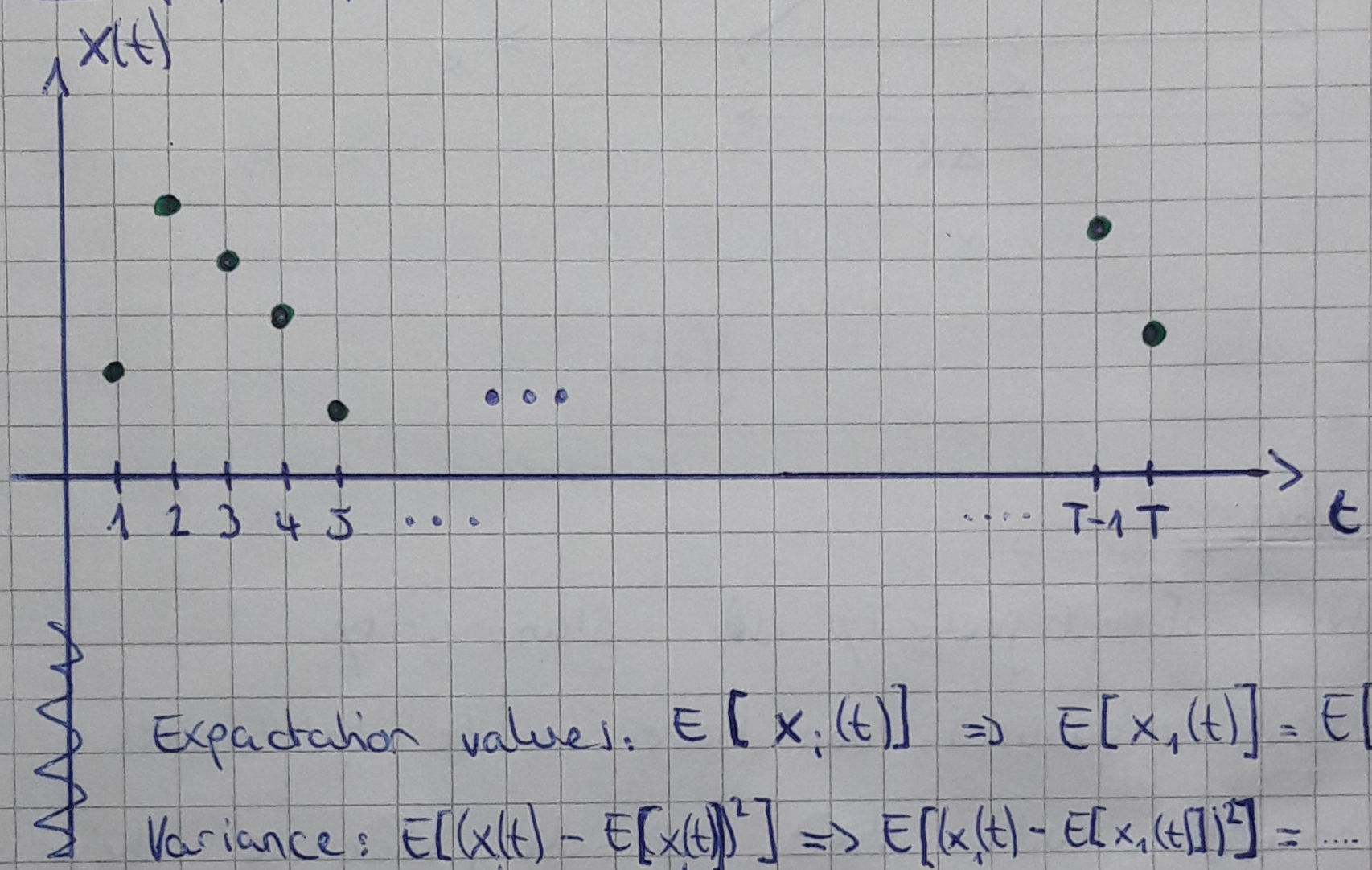
Stochastic and deterministic signals in LTI-Systems

Stationarity

- ~~in~~ characterized the stability of random processes
- the ~~mean~~ expectation value and the variance of a time series is independed by the time variable t

-> Example: time series



Expactation value: $E[x_i(t)] \Rightarrow E[x_1(t)] = E[x_2(t)] = \dots = E[x_T(t)]$

Variance: $E[(x_i(t) - E[x_i(t)])^2] \Rightarrow E[(x_1(t) - E[x_1(t)])^2] = \dots = E[(x_T(t) - E[x_T(t)])^2]$

Expected value: μ

- describes a value, which is accepted ~~by~~ of a random variable by its ~~mean~~ average

Variance: σ

- average ~~difference~~ square ~~deviation~~ derivation (difference) of a ~~real~~ random variable by its expected value