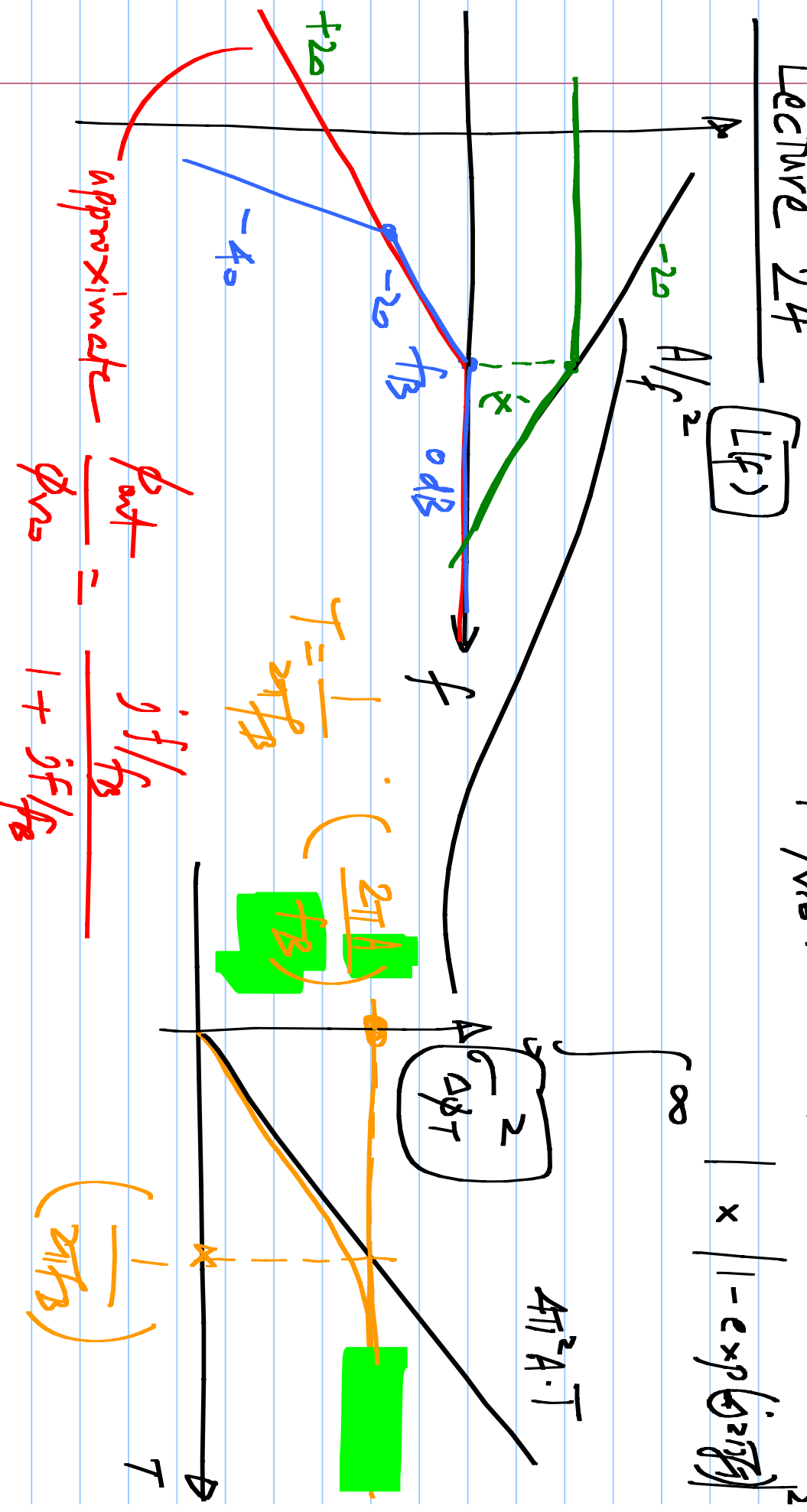
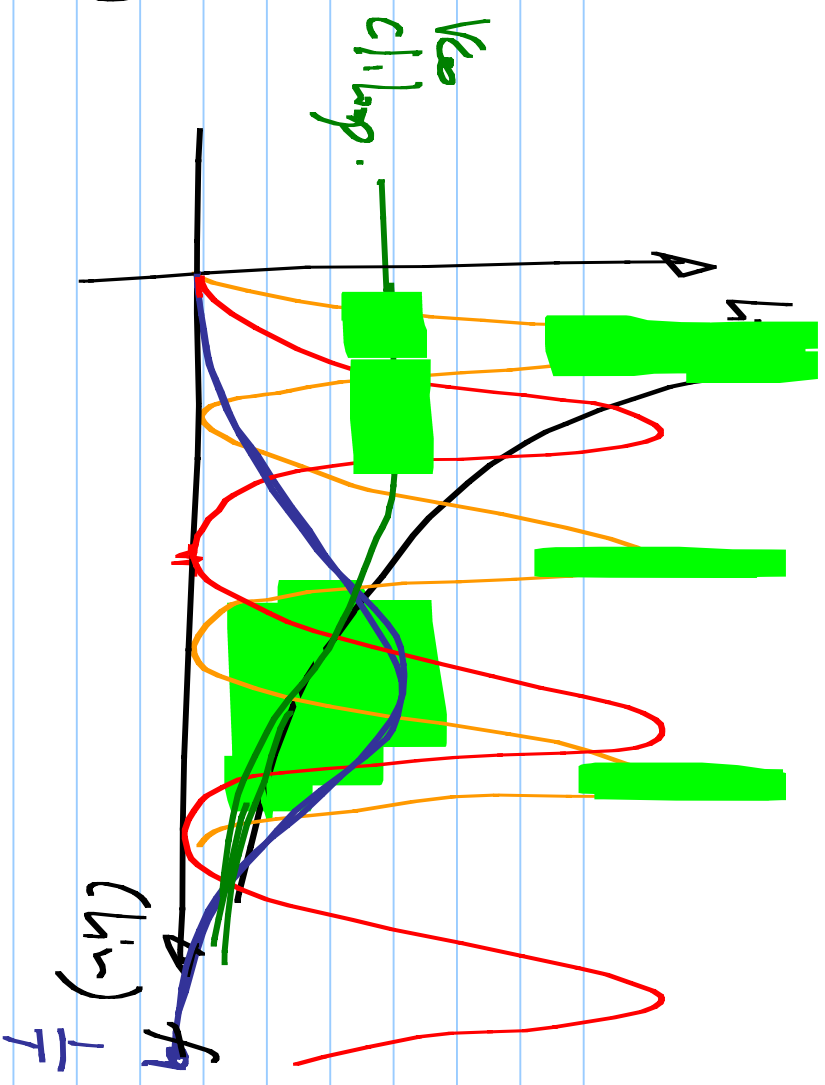
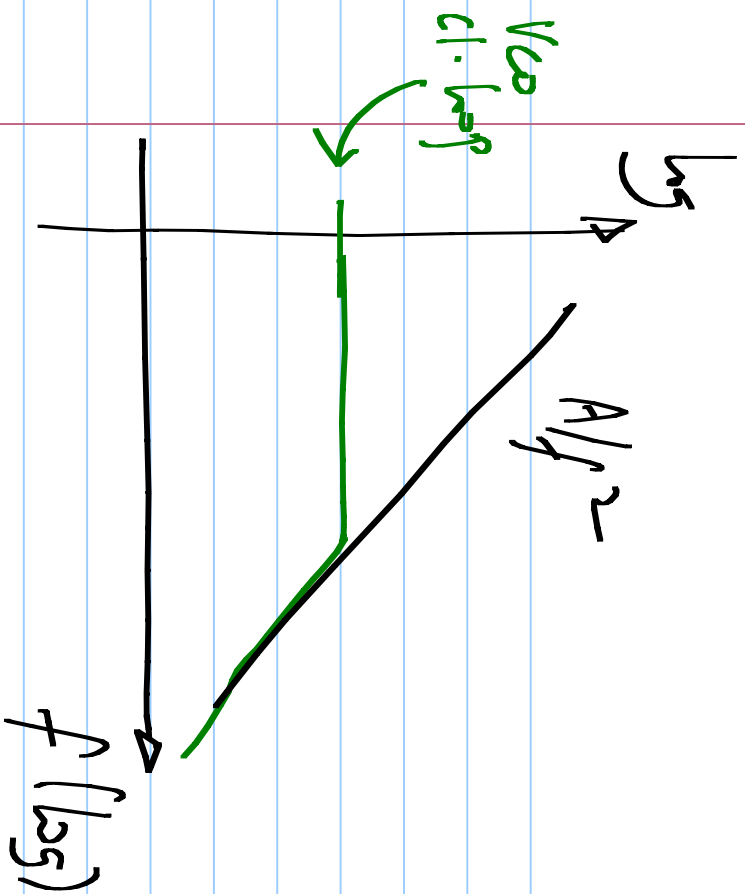


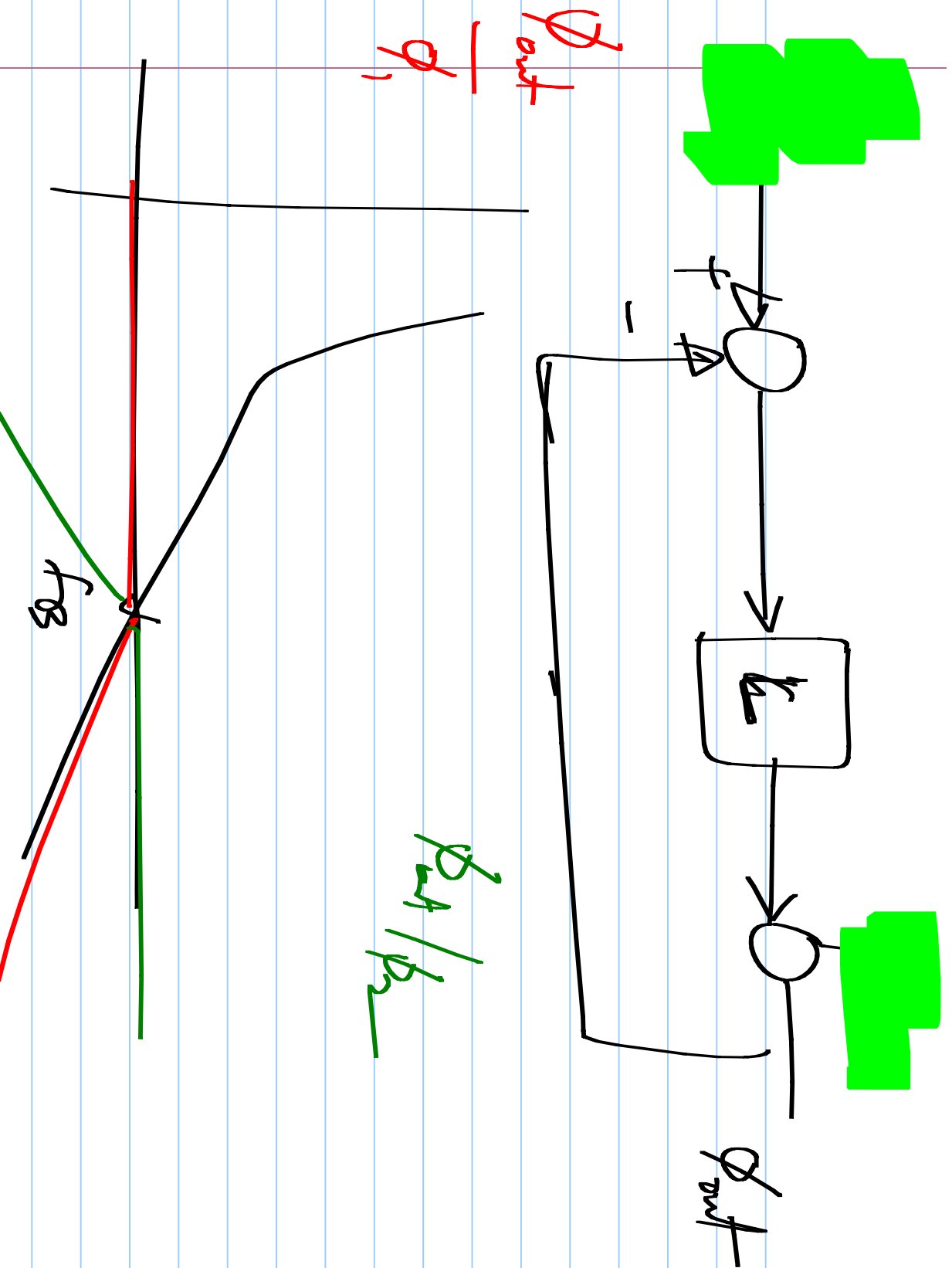
Lecture 24

$$2.L(f) \cdot \left| \frac{\phi_{out}}{\phi_{in}} \right|^2 = S_{\phi, cor}(f)$$





$$e^{-\frac{1}{2} \sqrt{2} \pi f T} \Big|_{45 \times 10^3} \approx 10^{-1.5}$$



59Hz

Vco:

$$L(1\text{MHz}) = -120\text{dBc/Hz}$$

57

$$A = 1$$

$$\text{Period jitter} = \sqrt{A T_0^3} = \boxed{2.8\text{fs}}$$

Enclosed in a

PLL:

with 1MHz BW

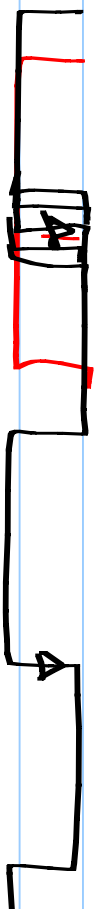
(Absolute jitter)
(phase) $\sqrt{2\pi\text{mrad}}$

Absolute jitter

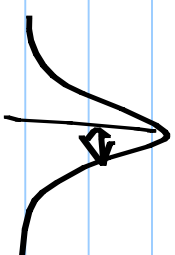
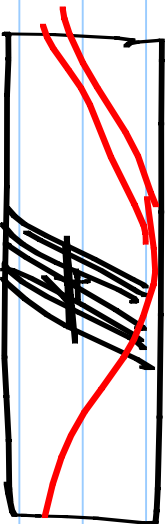
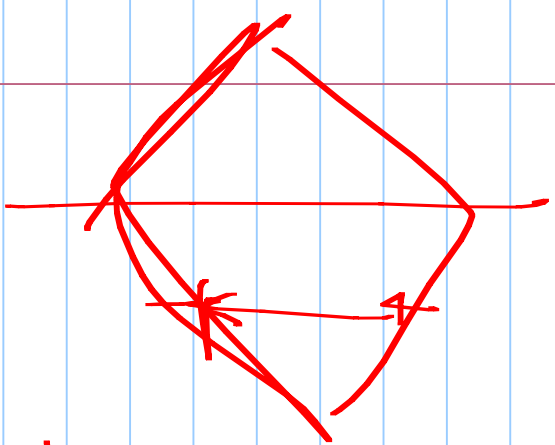
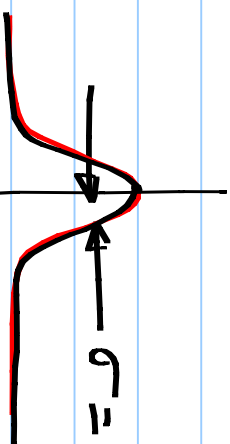
$$= \underline{0.08\text{ps}}$$

$$\sqrt{2\pi \times 10^{-3} \times 200\text{ps}} \times \frac{1}{2\pi}$$

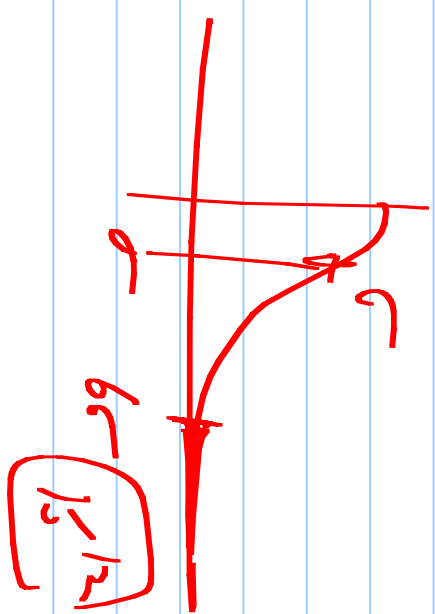
clean
data



$$\sqrt{\frac{20A}{f_3} \cdot \frac{f_0}{21}}$$



$$BER = 10^{-12}$$



Phase-locked loop:

