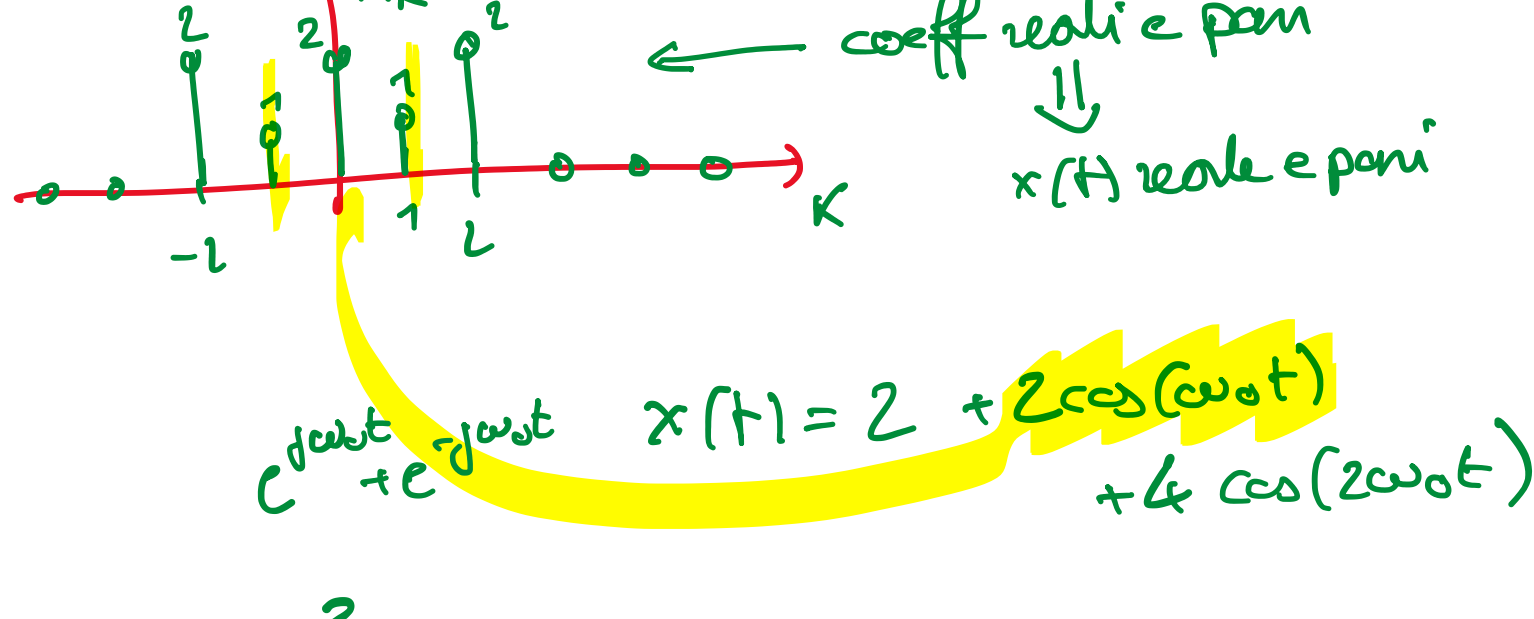


Es1d

s(t) = x(t) cos(10ω₀t)

↑ periodio Tₚ      ω₀ = 2π/Tₚ

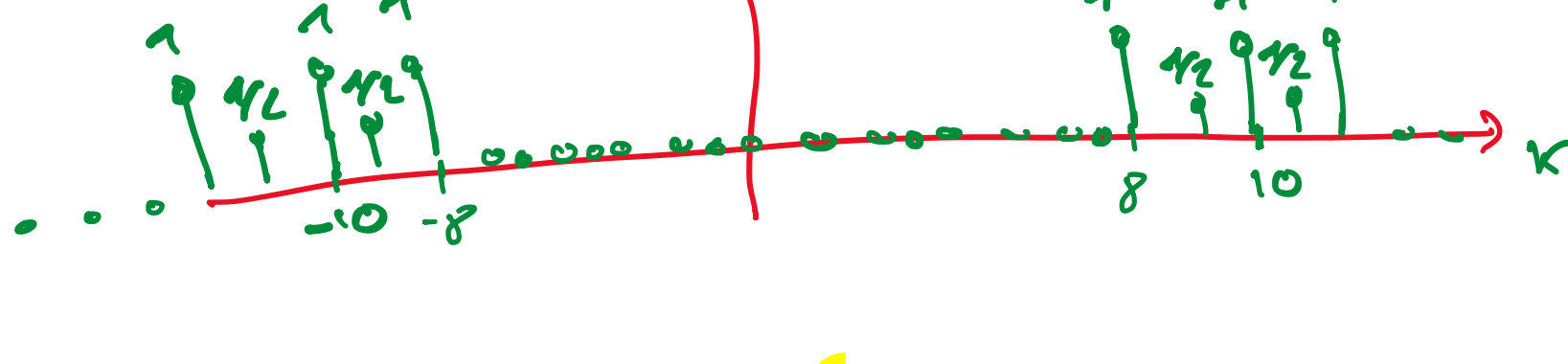


Sₖ = ?

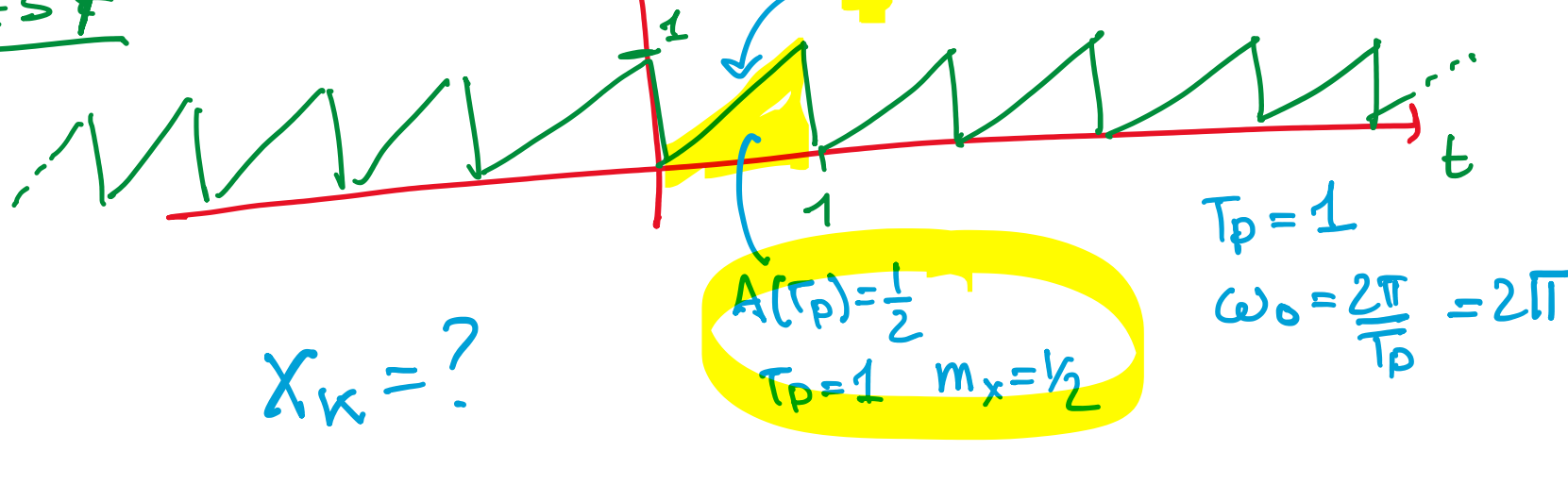
cos(10ω₀t) = 1/2 e^{j10ω₀t} + 1/2 e^{-j10ω₀t}

s(t) = 1/2 x(t) e^{j10ω₀t} + 1/2 x(t) e^{-j10ω₀t}

Sₖ = 1/2 X\_{k-10} + 1/2 X\_{k+10}



Es7



y(t) = 1 - comb₂(t)

y(t) = 1 - 2p₂ δ(t)

Yₖ = δ(k) - 1/k = 0 for k=0, -1 for k≠0

REGOLA DI DERIVAZIONE Yₖ = Xₖ · jkω₀ = Xₖ · j2πk

Nota: Y₀ = X₀ · j · 0 · ω₀ = 0

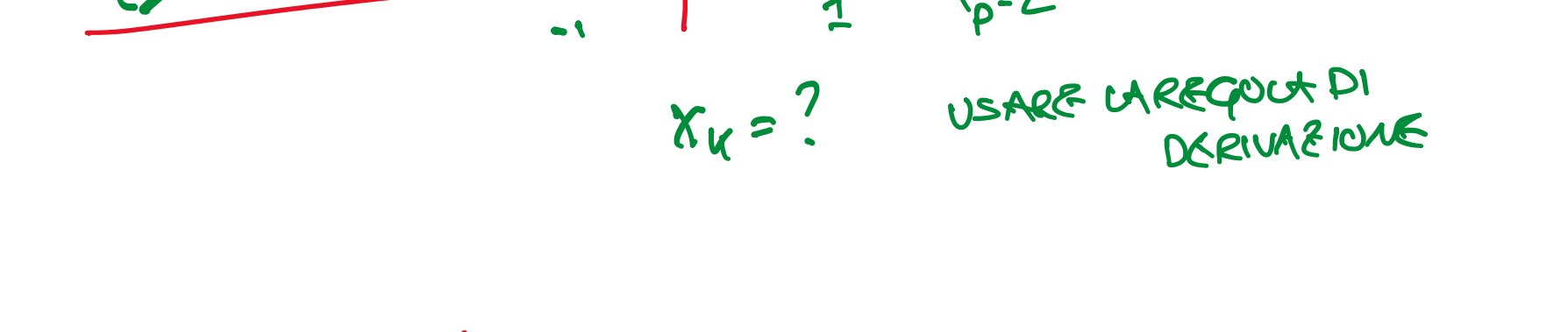
Xₖ = Yₖ / jkω₀ = Yₖ / j2πk

k=0: Y₀ / jω₀ = 0/0 = ?

Xₖ = { mₓ for k=0, Yₖ / jkω₀ for k≠0

Xₖ = { 1/2 for k=0, -1 / j2πk = 1 / 2πk for k≠0

XkSA



Es1d REVISITED

s(t) = x(t) cos(10ω₀t)      ω₀ = 2π/Tₚ

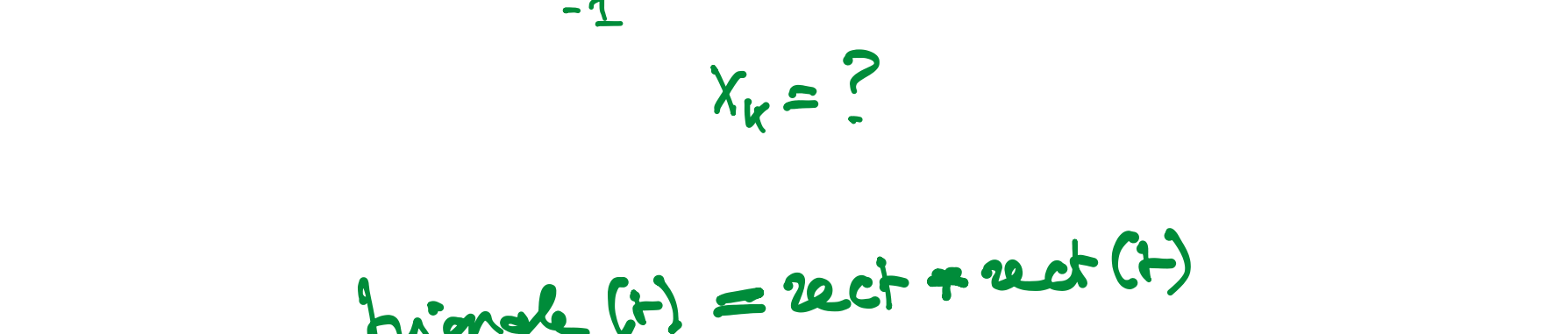
Sₖ = Xₖ + Yₖ

y(t) = 1/2 e^{j10ω₀t} + 1/2 e^{-j10ω₀t}

Yₖ = 1/2 δ(k-10) + 1/2 δ(k+10)

Sₖ = Xₖ + (1/2 δ(k-10) + 1/2 δ(k+10)) = 1/2 Xₖ + δ(k-10) + 1/2 Xₖ + δ(k+10) = 1/2 X\_{k-10} + 1/2 X\_{k+10}

Es8



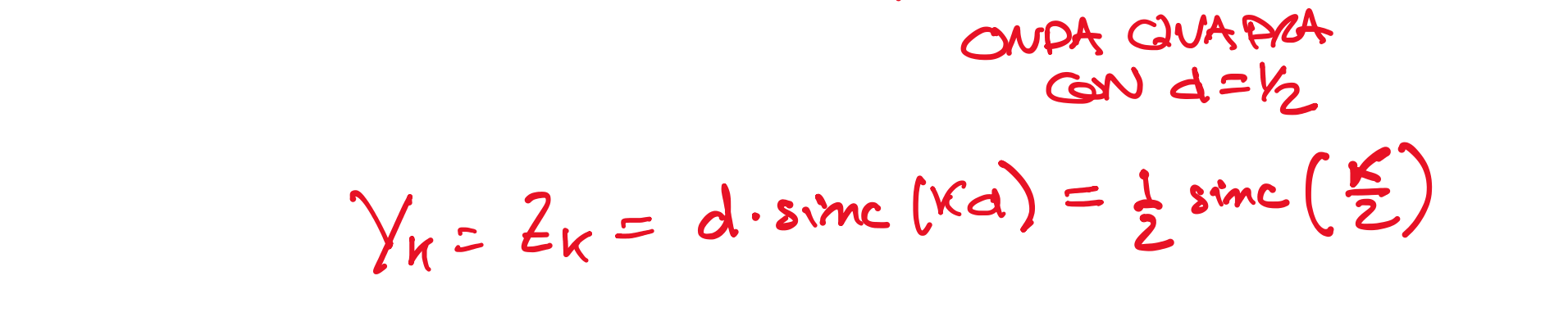
triangle(t) = 2rect + rect(t)

x(t) = 2p₂ 2rect + rect(t)

x(t) = y + z(t)

y(t) = 2p₂ 2rect(t)

z(t) = 2p₂ rect(t) = y(t)

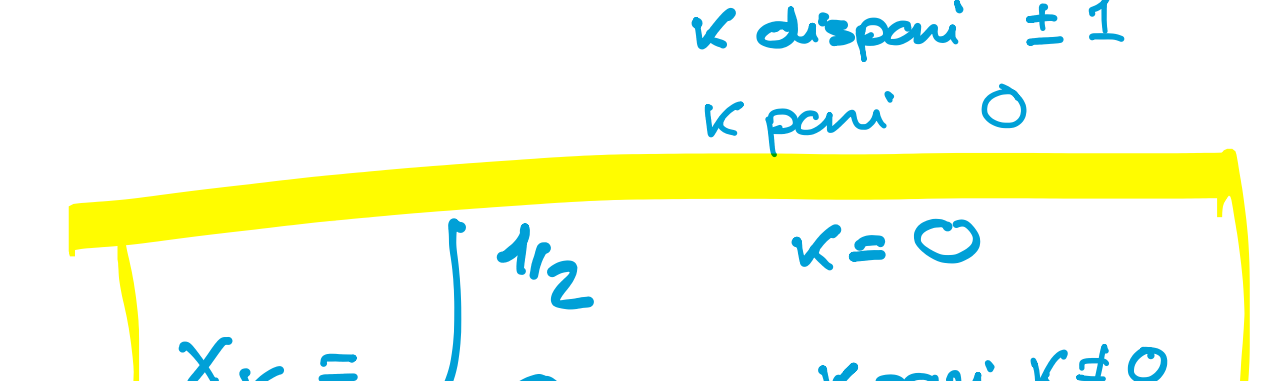


Yₖ = Zₖ = d · sinc(kd) = 1/2 sinc(k/2)

x(t) = y + z(t)

Xₖ = Tₚ Yₖ Zₖ = 2 · (1/2 sinc(k/2))² = 1/2 sinc²(k/2)

Xₖ = { 1/2 for k=0, 1/2 sin²(πk/2) / (πk/2)² for k≠0



Xₖ = { 1/2 for k=0, 0 for k pari, k≠0, 2 / (πk)² for k dispari

