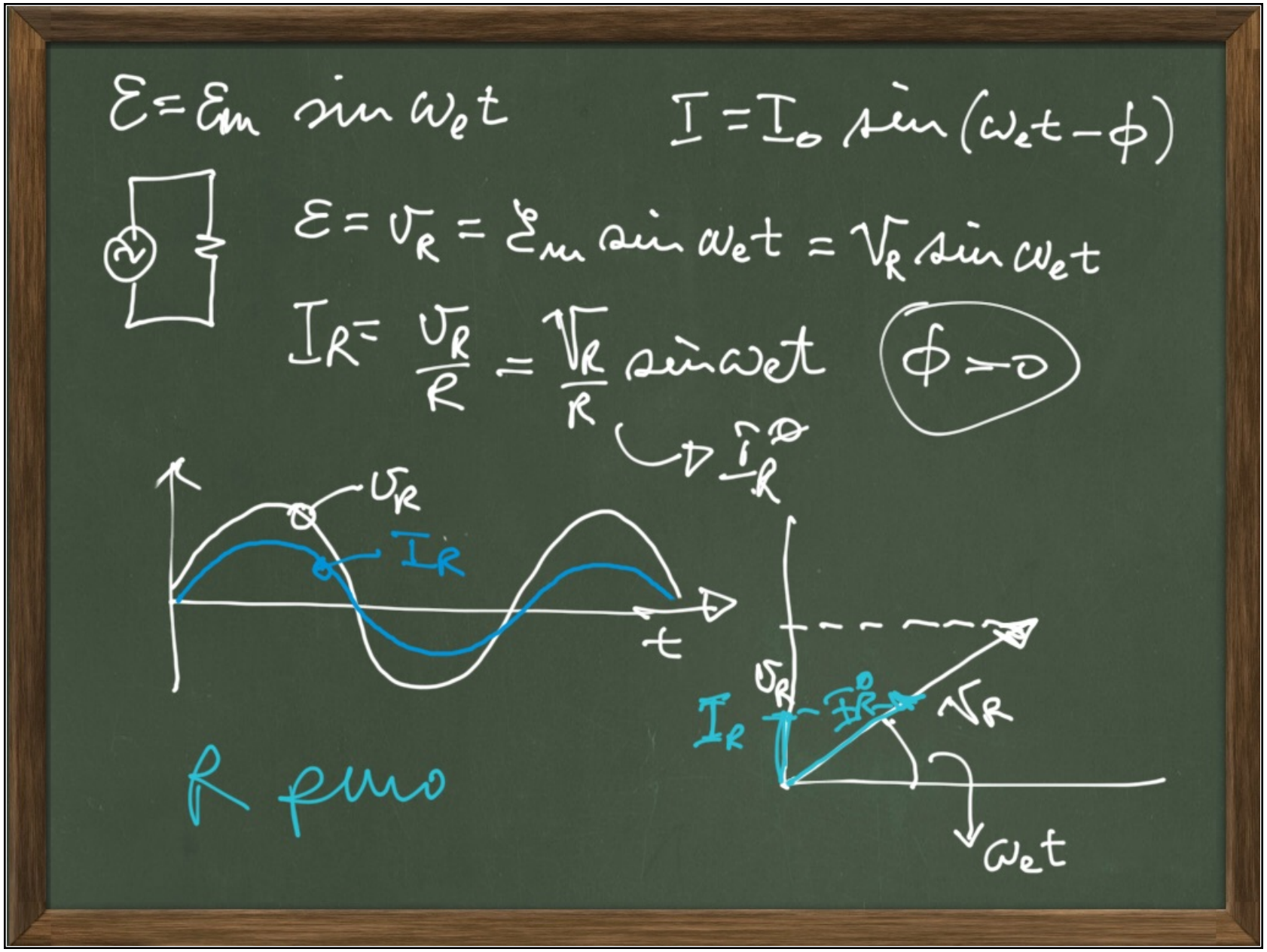
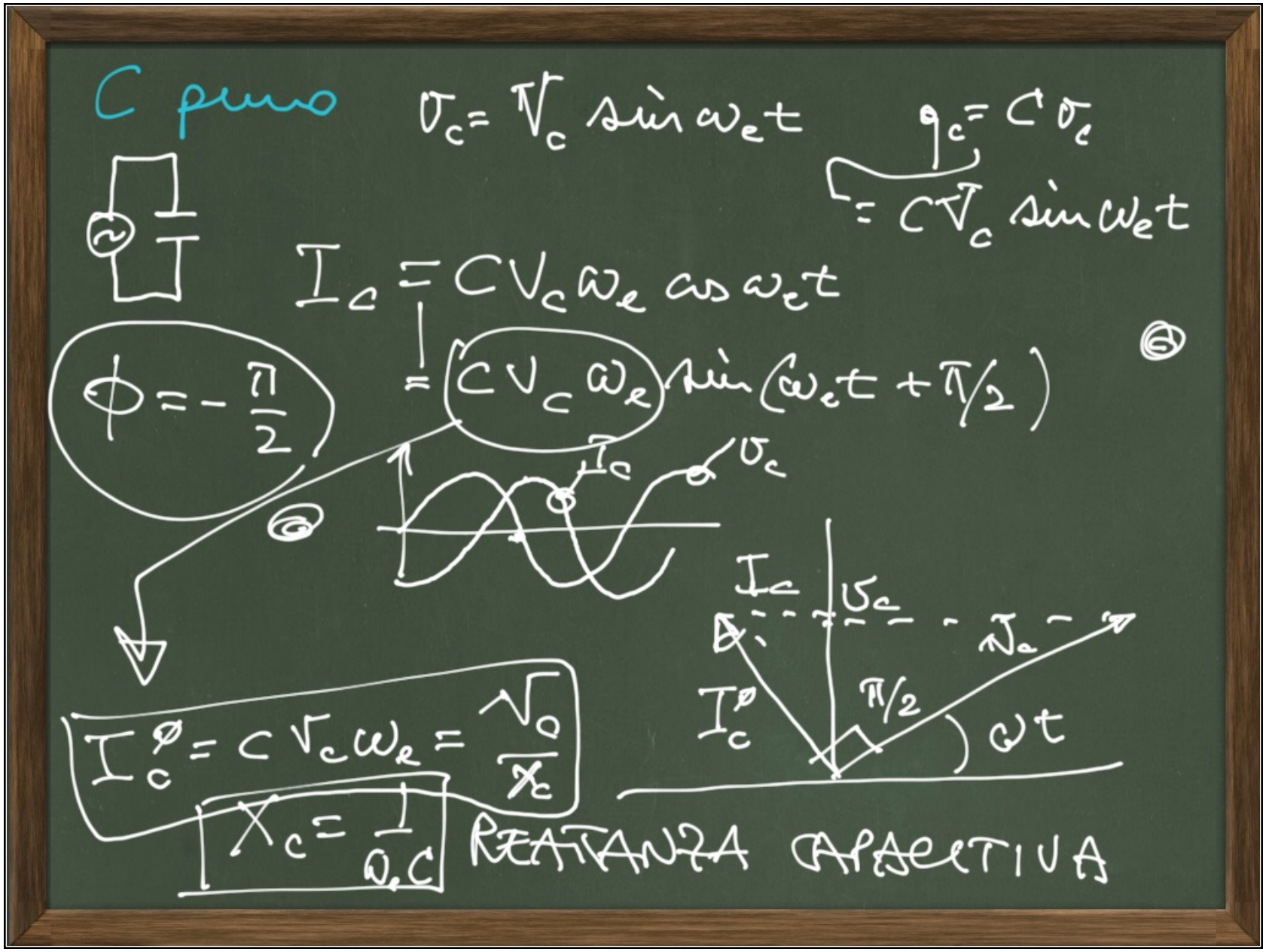
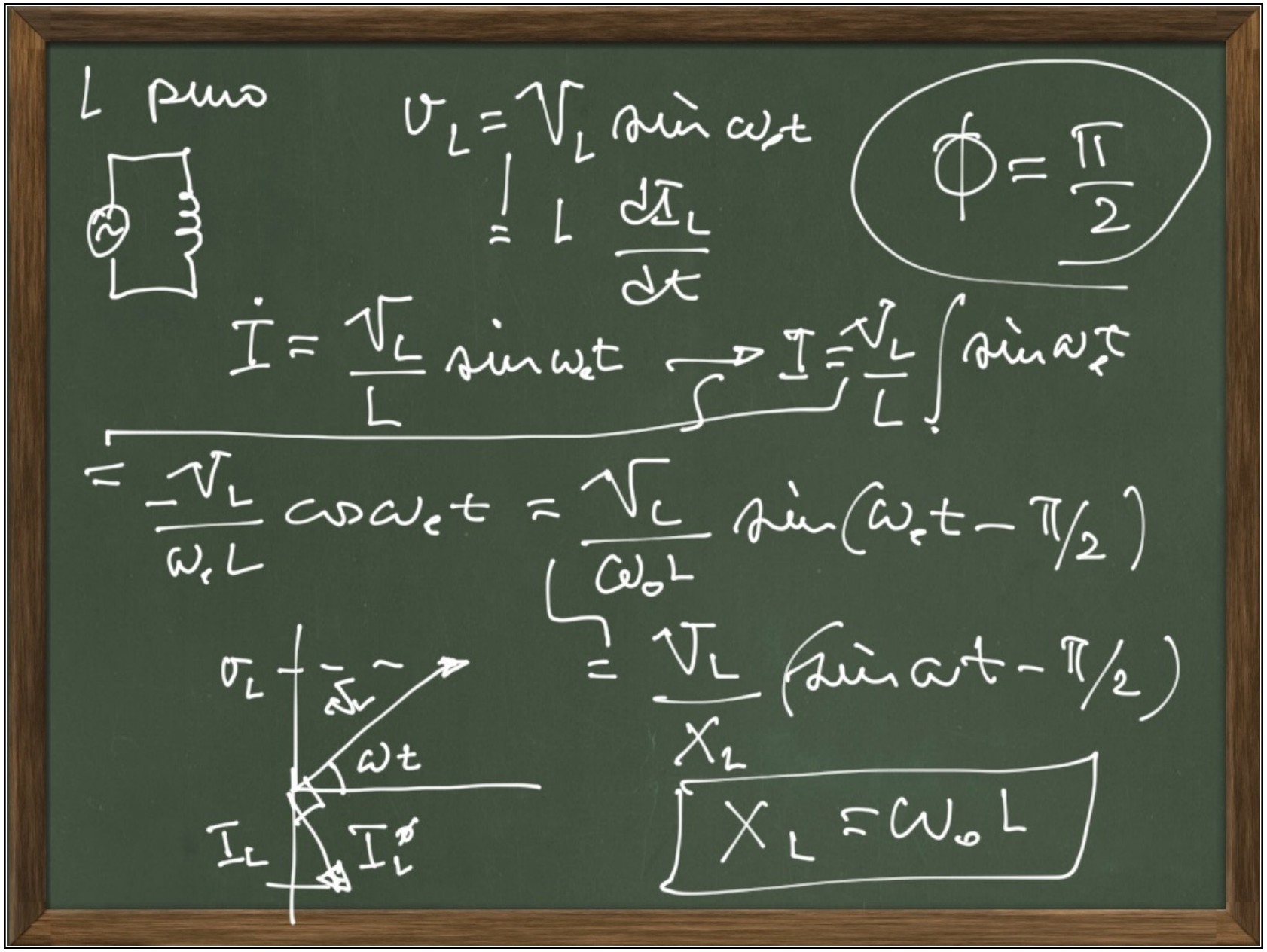
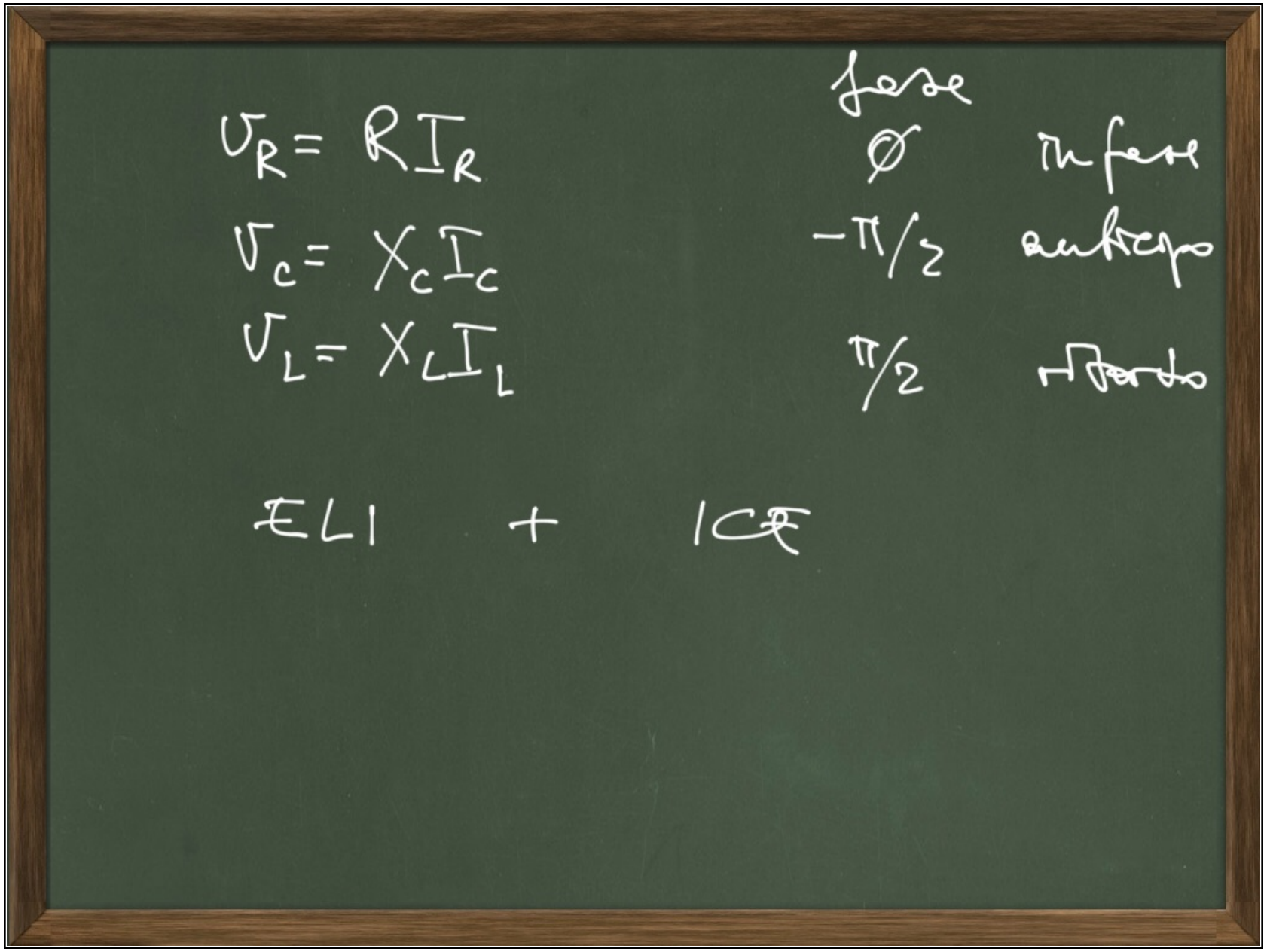

$\mathcal{E} = \mathcal{E}_m \sin \omega_e t$
$I = I_0 \sin(\omega_e t - \phi)$
$\mathcal{E} = V_R = \mathcal{E}_m \sin \omega_e t = V_R \sin \omega_e t$
$I_R = \frac{V_R}{R} = \frac{V_R}{R} \sin \omega_e t$
$\phi = 0$
$\vec{I}_R$
V_R
I_R
t
R puro
V_R
I_R
$\vec{I}_R$
V_R
$\omega_e t$


C puro
$v_c = V_c \sin \omega_e t$
$q_c = C v_c$
$= C V_c \sin \omega_e t$
$I_c = C V_c \omega_e \cos \omega_e t$
$\phi = -\frac{\pi}{2}$
$= C V_c \omega_e \sin(\omega_e t + \pi/2)$
I_c
v_c
I_c
v_c
$\pi/2$
ωt
$I_c^{\phi} = C V_c \omega_e = \frac{V_c}{X_c}$
$X_c = \frac{1}{\omega_e C}$
REATANZA CAPACITIVA


L puro
$v_L = V_L \sin \omega_0 t$
$= L \frac{dI_L}{dt}$
$\phi = \frac{\pi}{2}$
$\dot{I} = \frac{V_L}{L} \sin \omega_0 t \rightarrow I = \frac{V_L}{L} \int \sin \omega_0 t$
$= \frac{-V_L}{\omega_0 L} \cos \omega_0 t = \frac{V_L}{\omega_0 L} \sin(\omega_0 t - \pi/2)$
$= \frac{V_L}{X_L} (\sin \omega t - \pi/2)$
v_L
ωt
I_L
I_L
$X_L = \omega_0 L$


$V_R = R I_R$
$V_C = X_C I_C$
$V_L = X_L I_L$
fase
$\varnothing$
$-\pi/2$
$\pi/2$
ELI + ICE