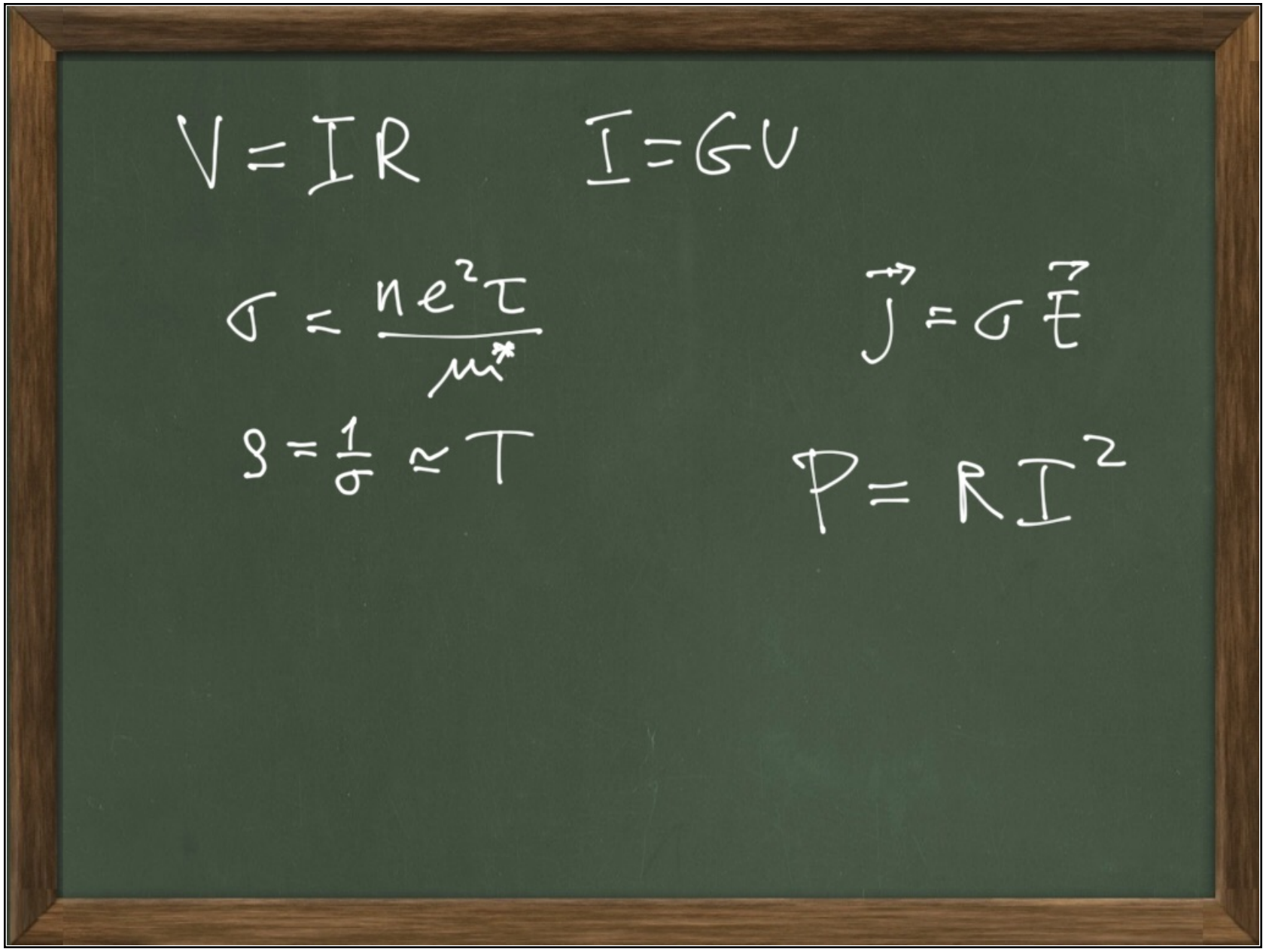
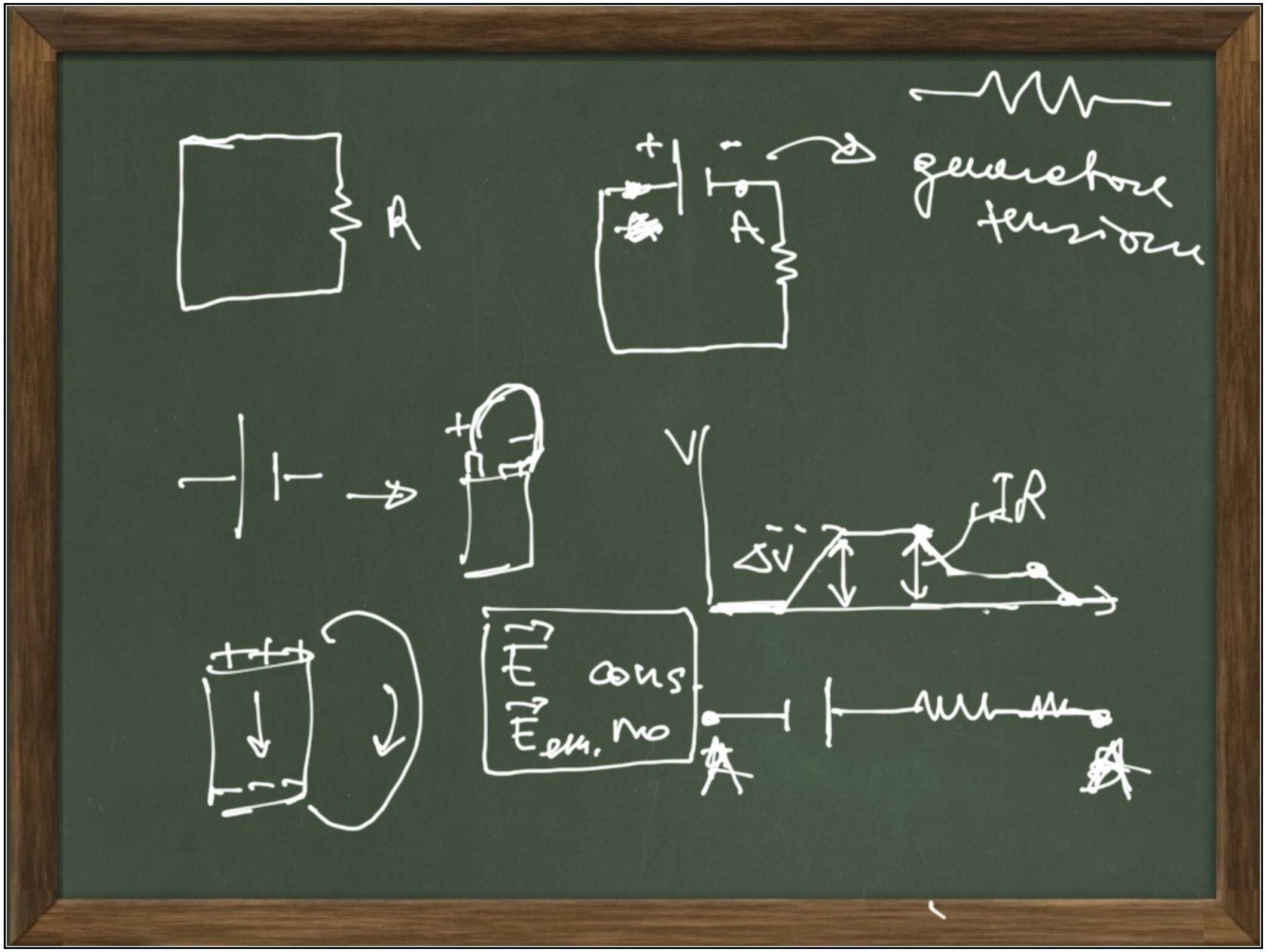
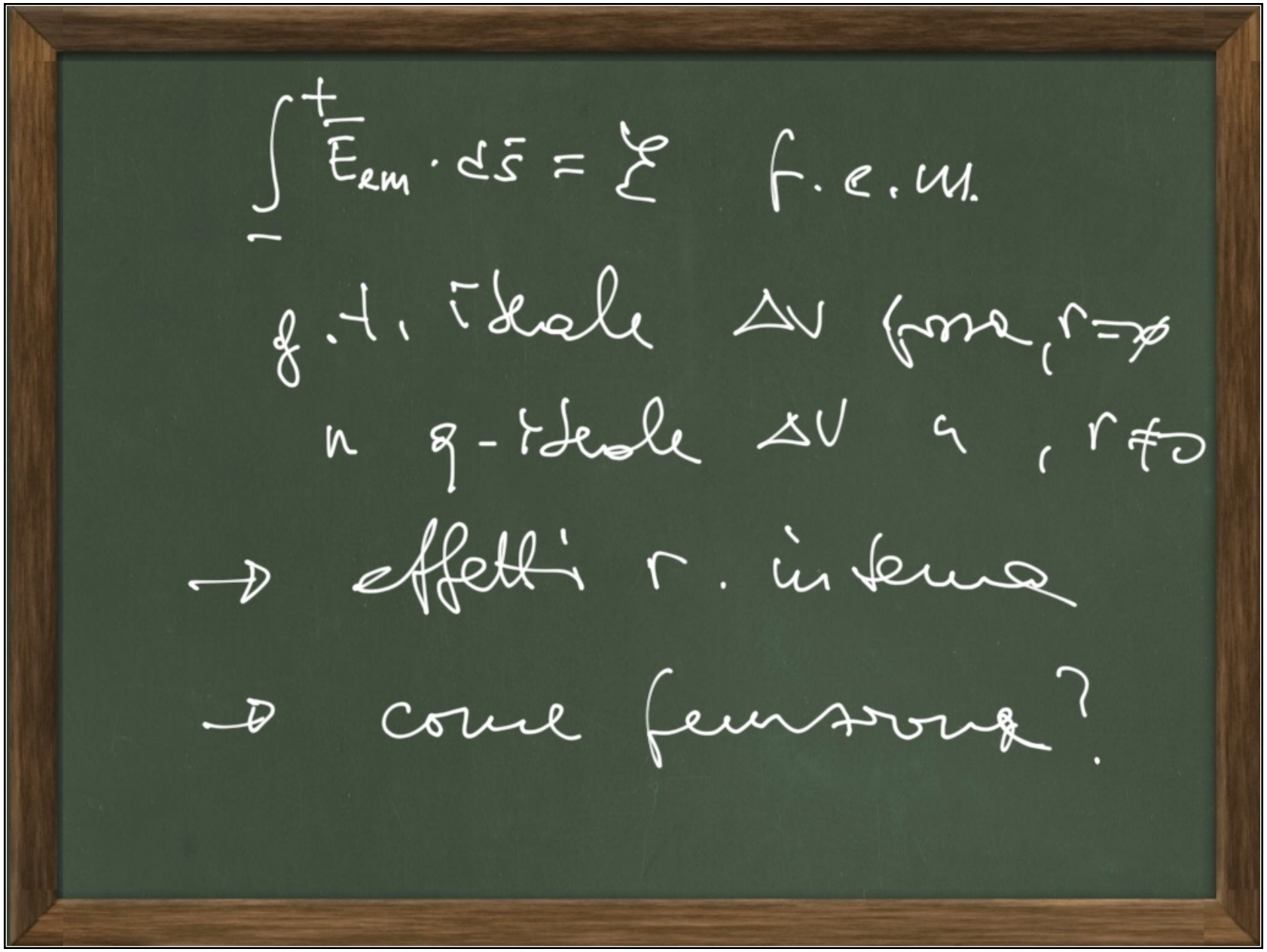
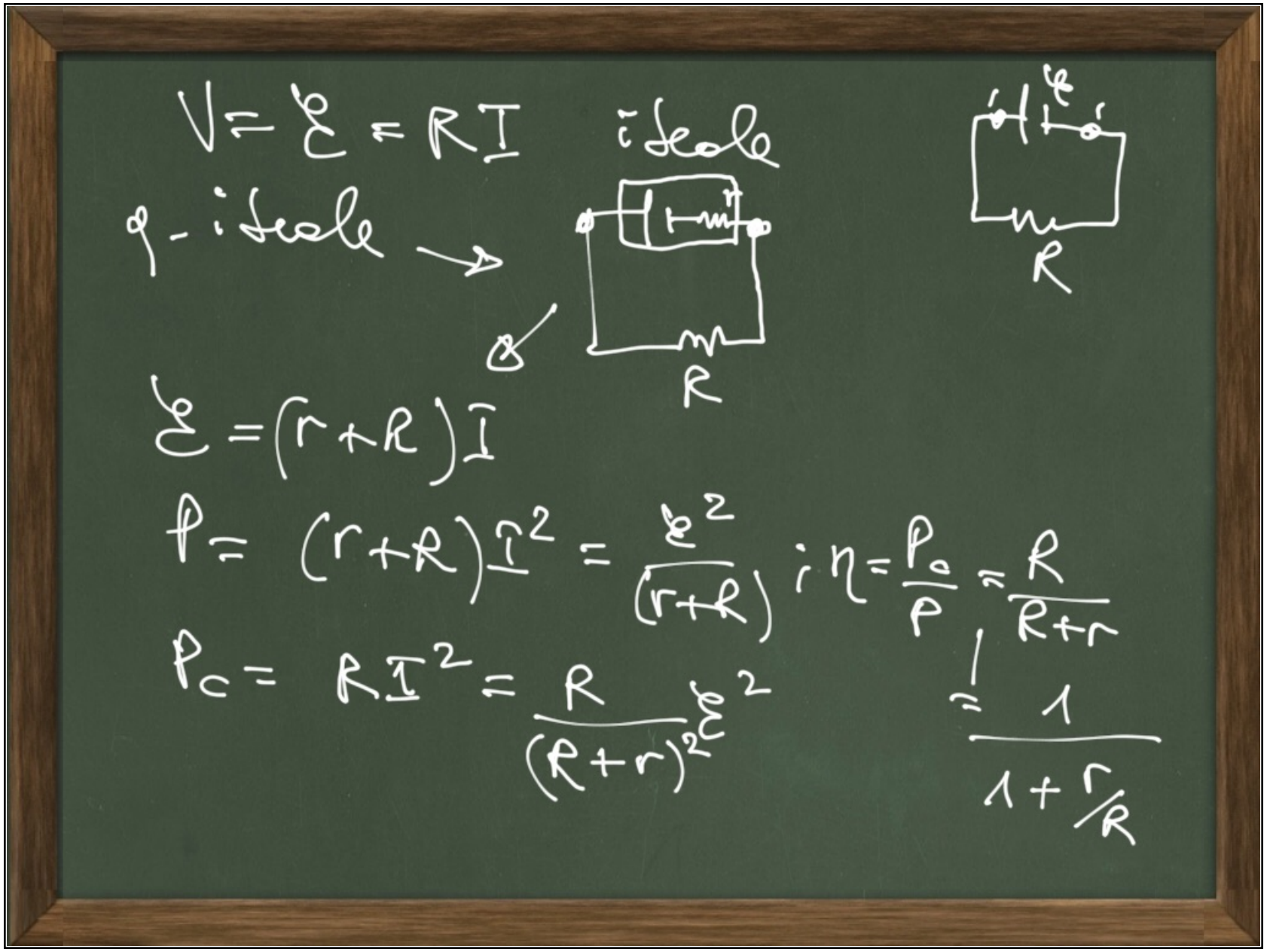
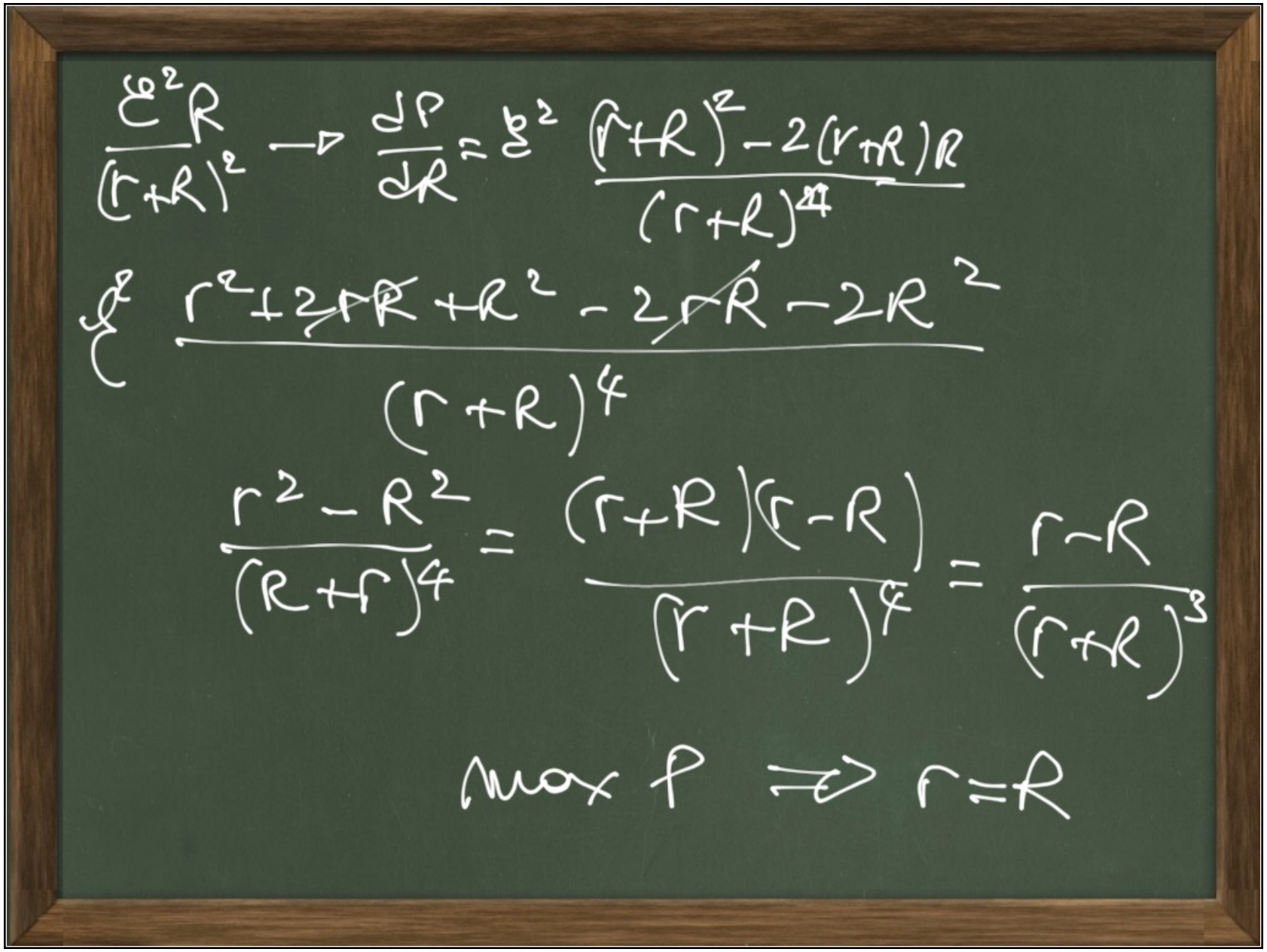
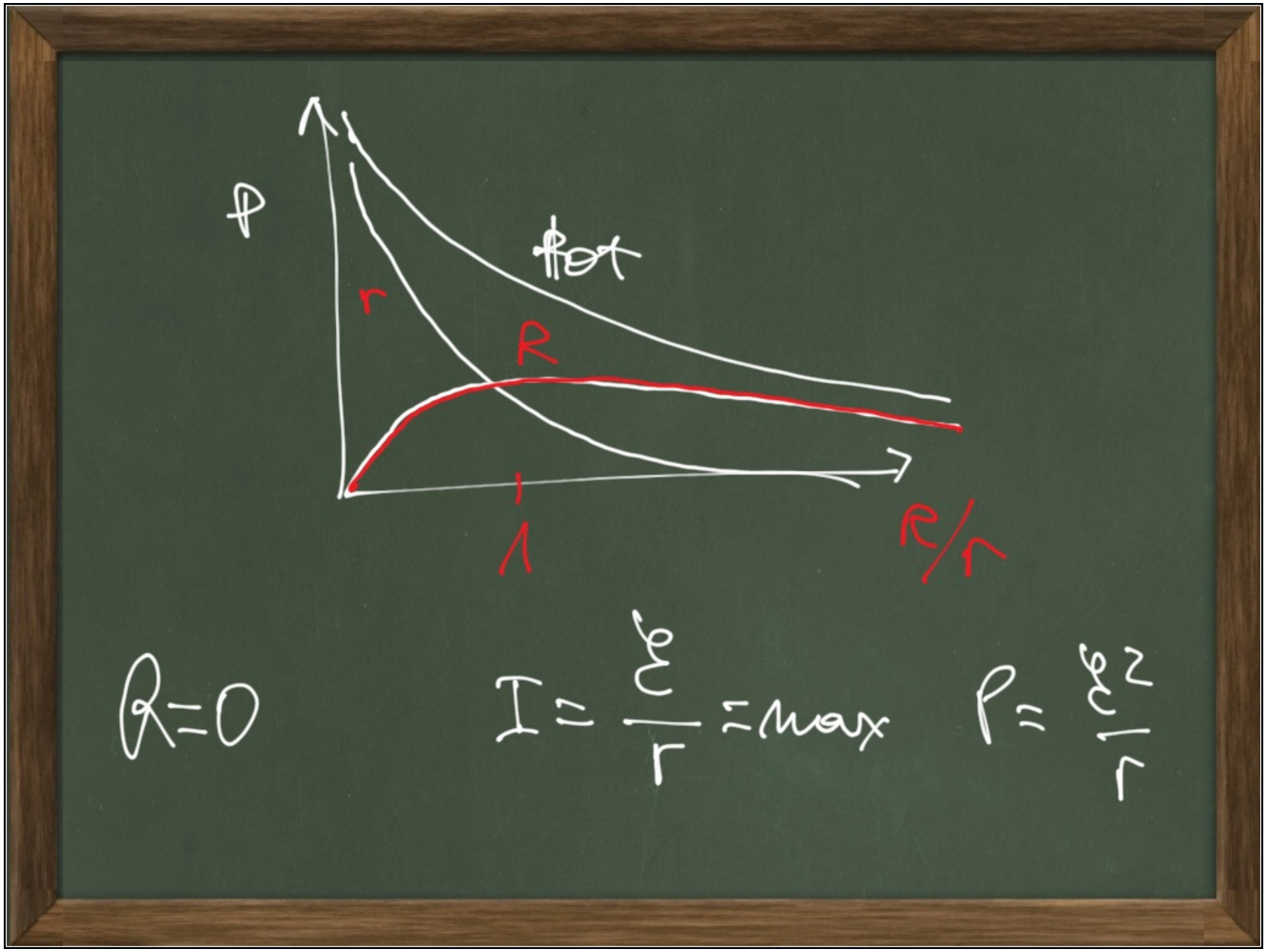

V = IR
I = GU
σ = ne²τ / m*
j = σE
ρ = 1/σ ≃ T
P = RI²

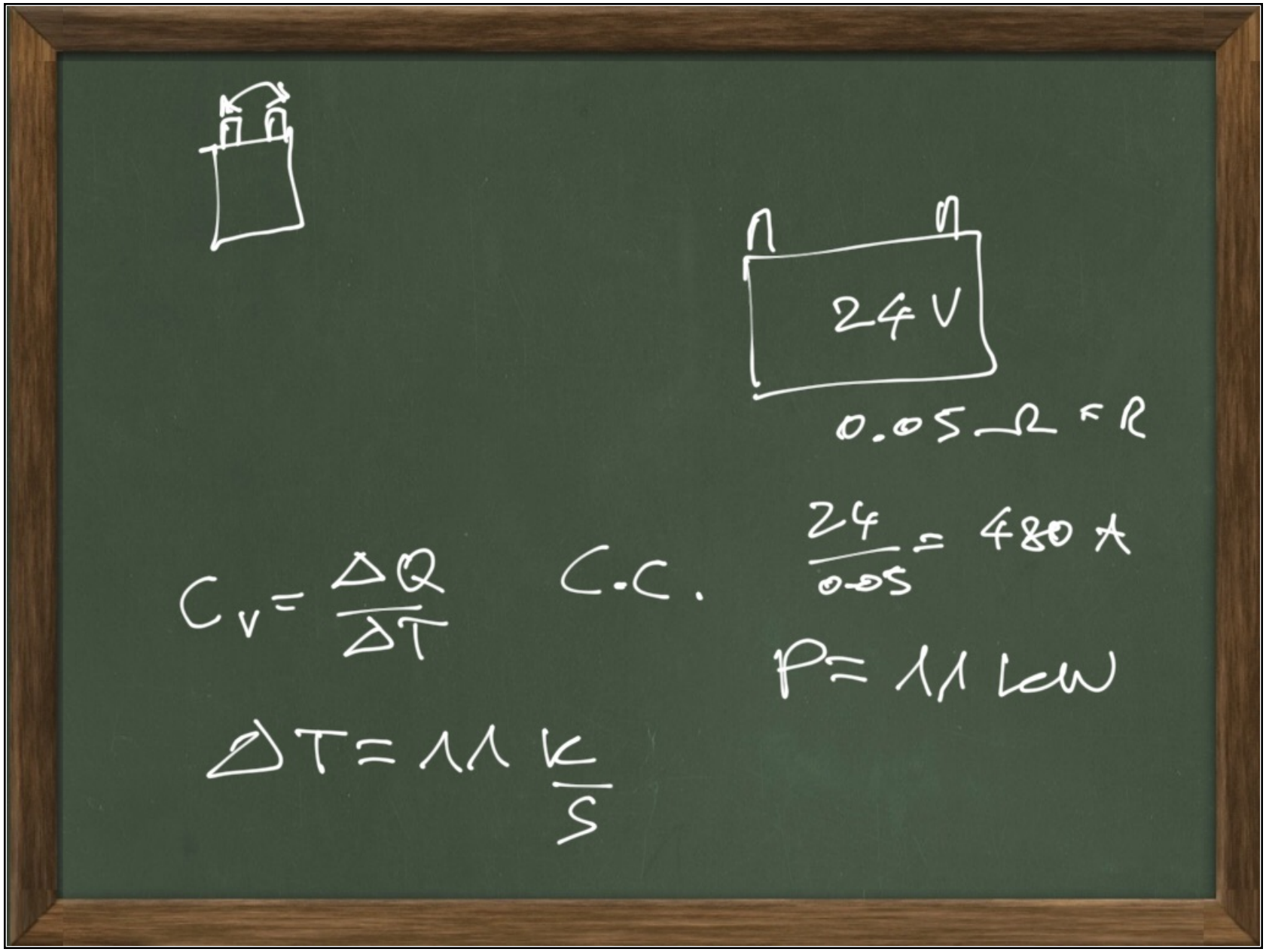

A
+
-
A
generateur
tension
V
ΔV
IR
E cons
E em. no

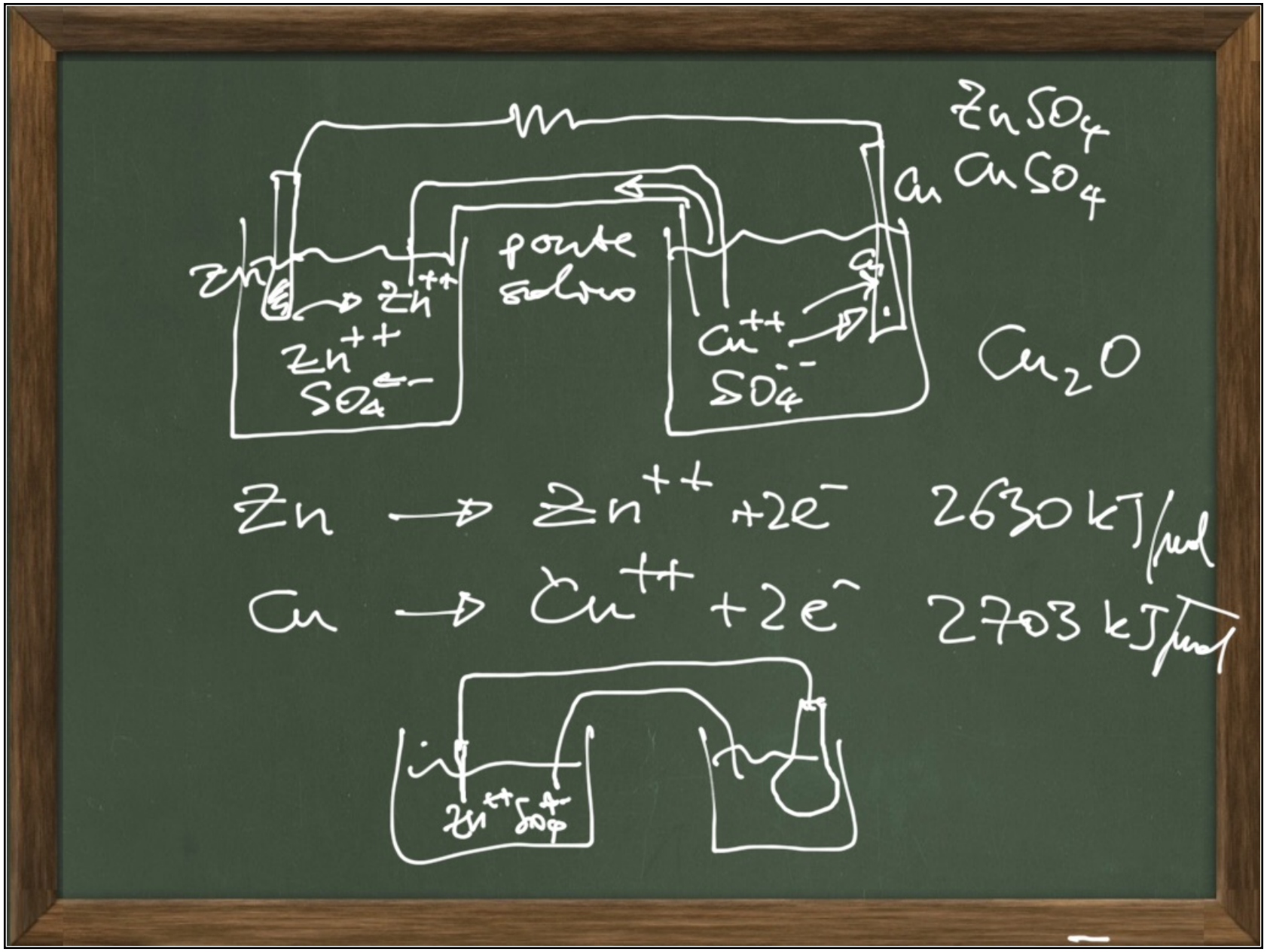

$\int_{-}^{+} \vec{E}_{em} \cdot d\vec{s} = \sum$ f.e.m.
f.t. ideale ΔV fissa, $r = 0$
n q-ideale ΔV q, $r \neq 0$
→ effetti r. interna
→ come fermarla?

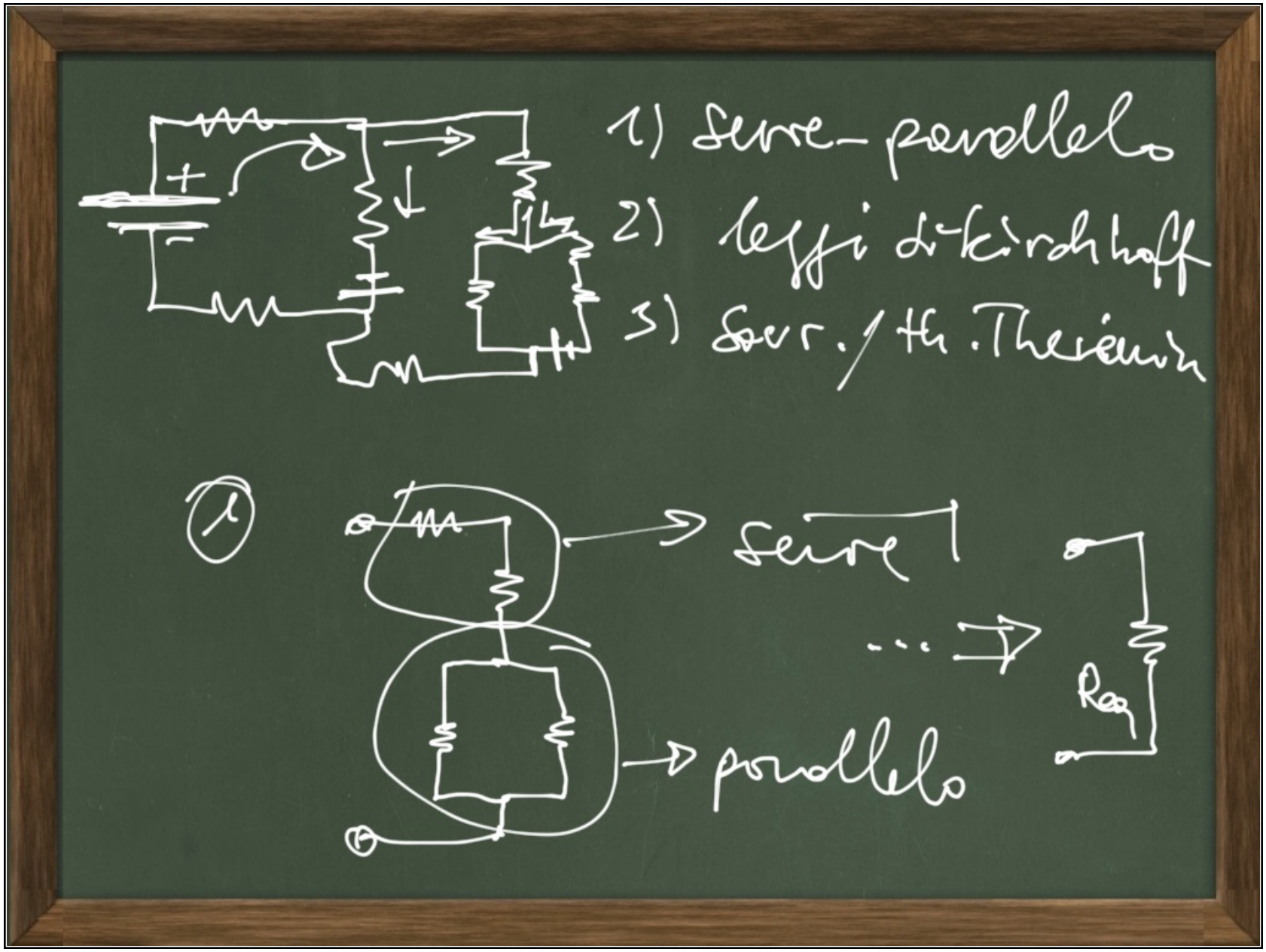

V = ℰ = RI
ideale
q - ideale
R
R
ℰ = (r + R) I
P = (r + R) I² = ℰ² / (r + R)
η = P_u / P = R / (R + r) = 1 / (1 + r/R)
P_c = RI² = R / (R + r)² ℰ²

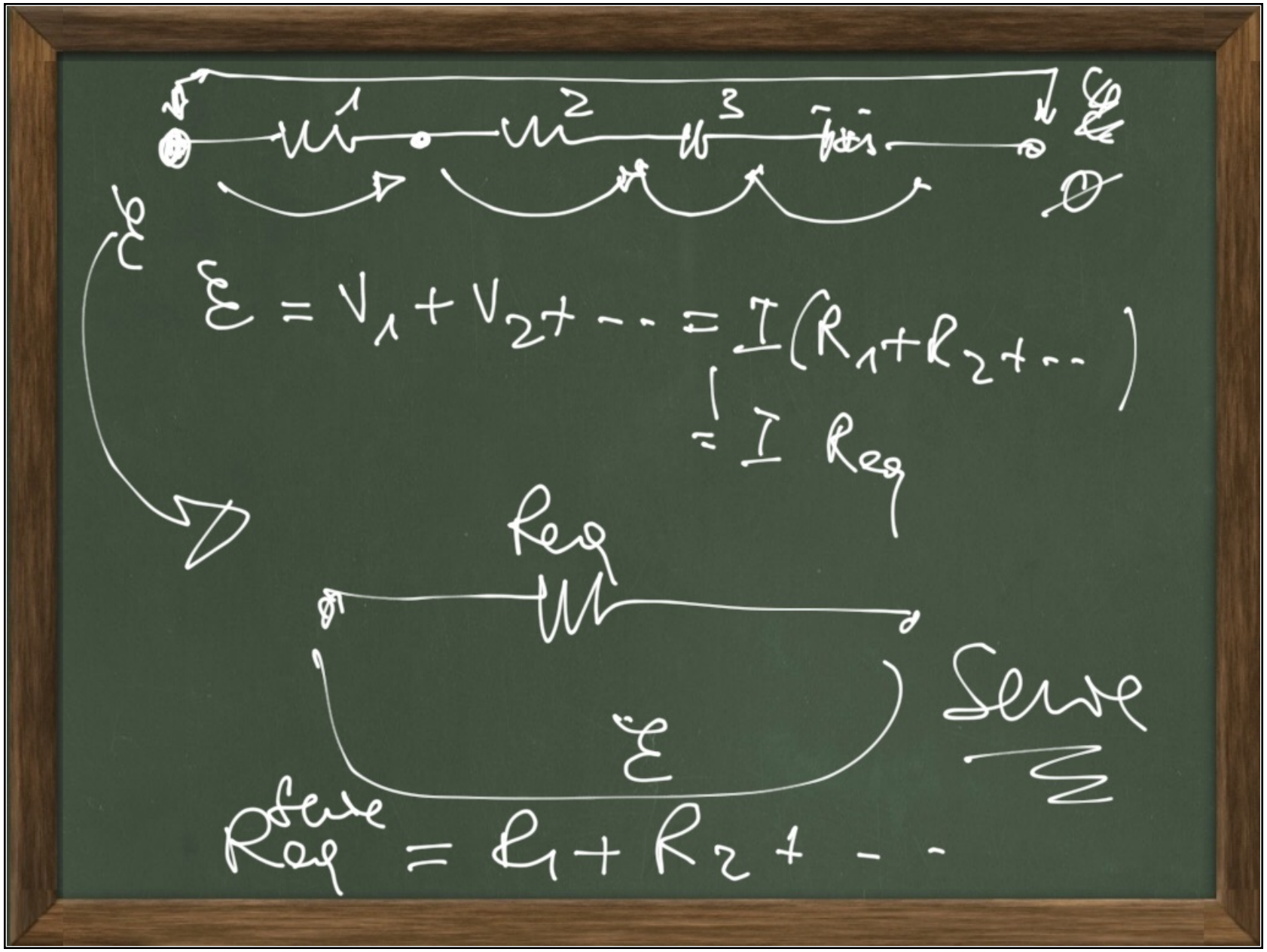

$\frac{\mathcal{E}^2 R}{(r+R)^2} \rightarrow \frac{dP}{dR} = \mathcal{E}^2 \frac{(r+R)^2 - 2(r+R)R}{(r+R)^4}$
$\mathcal{E}^2 \frac{r^2 + 2rR + R^2 - 2rR - 2R^2}{(r+R)^4}$
$\frac{r^2 - R^2}{(R+r)^4} = \frac{(r+R)(r-R)}{(r+R)^4} = \frac{r-R}{(r+R)^3}$
$\max P \Rightarrow r = R$

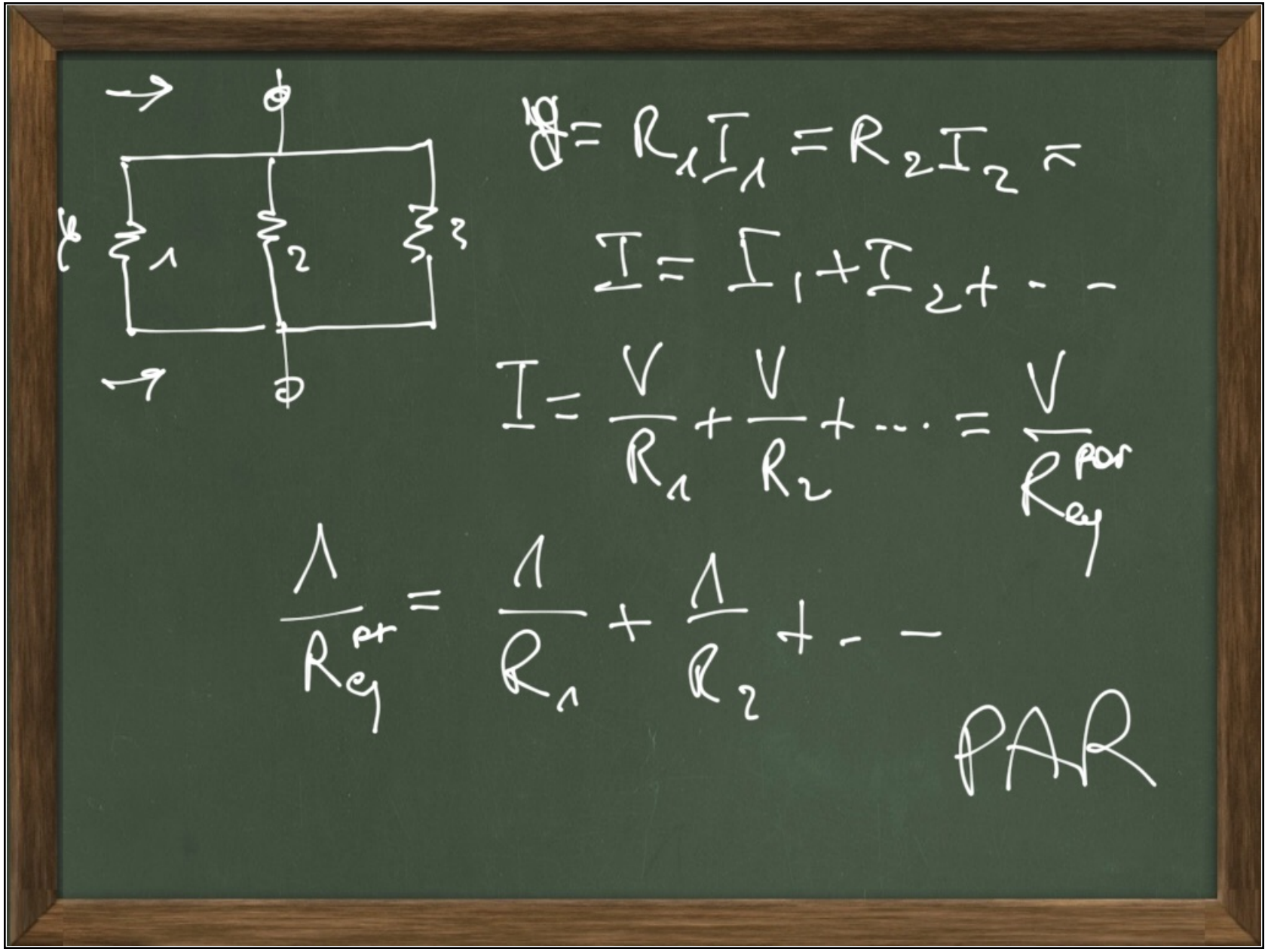

P
Pot
r
R
1
R/r
R=0
I = ε/r = max
P = ε²/r

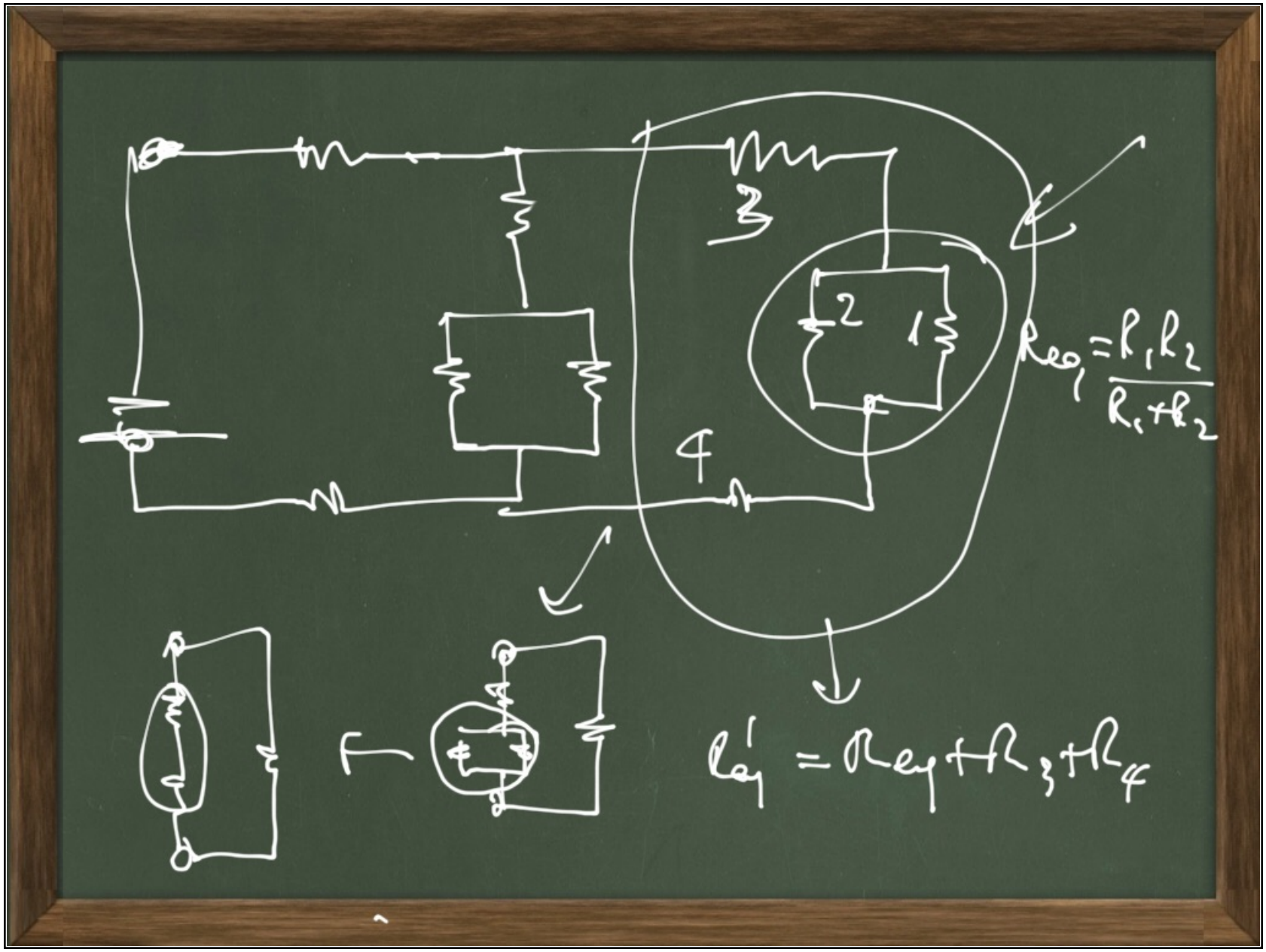

24 V
0.05 Ω = R
$C_V = \frac{\Delta Q}{\Delta T}$
C.C.
$\frac{24}{0.05} = 480\ A$
P = 11 kW
$\Delta T = 11\ \frac{K}{S}$

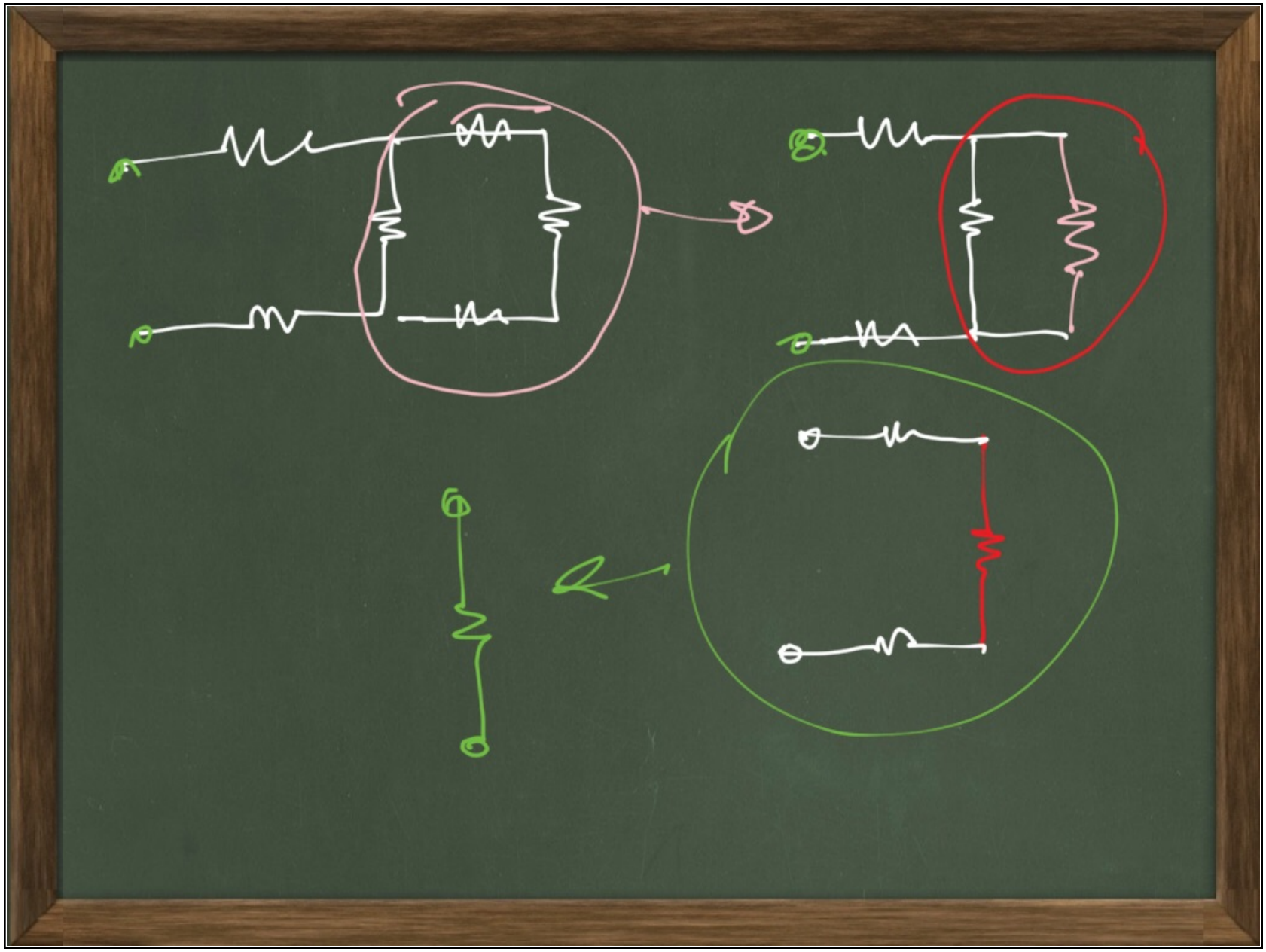

ZnSO4
CuSO4
Zn
Cu
ponte salino
Zn++
SO4--
Cu++
SO4--
Cu2O
Zn → Zn++ +2e-
2630 kJ/mol
Cu → Cu++ +2e-
2703 kJ/mol

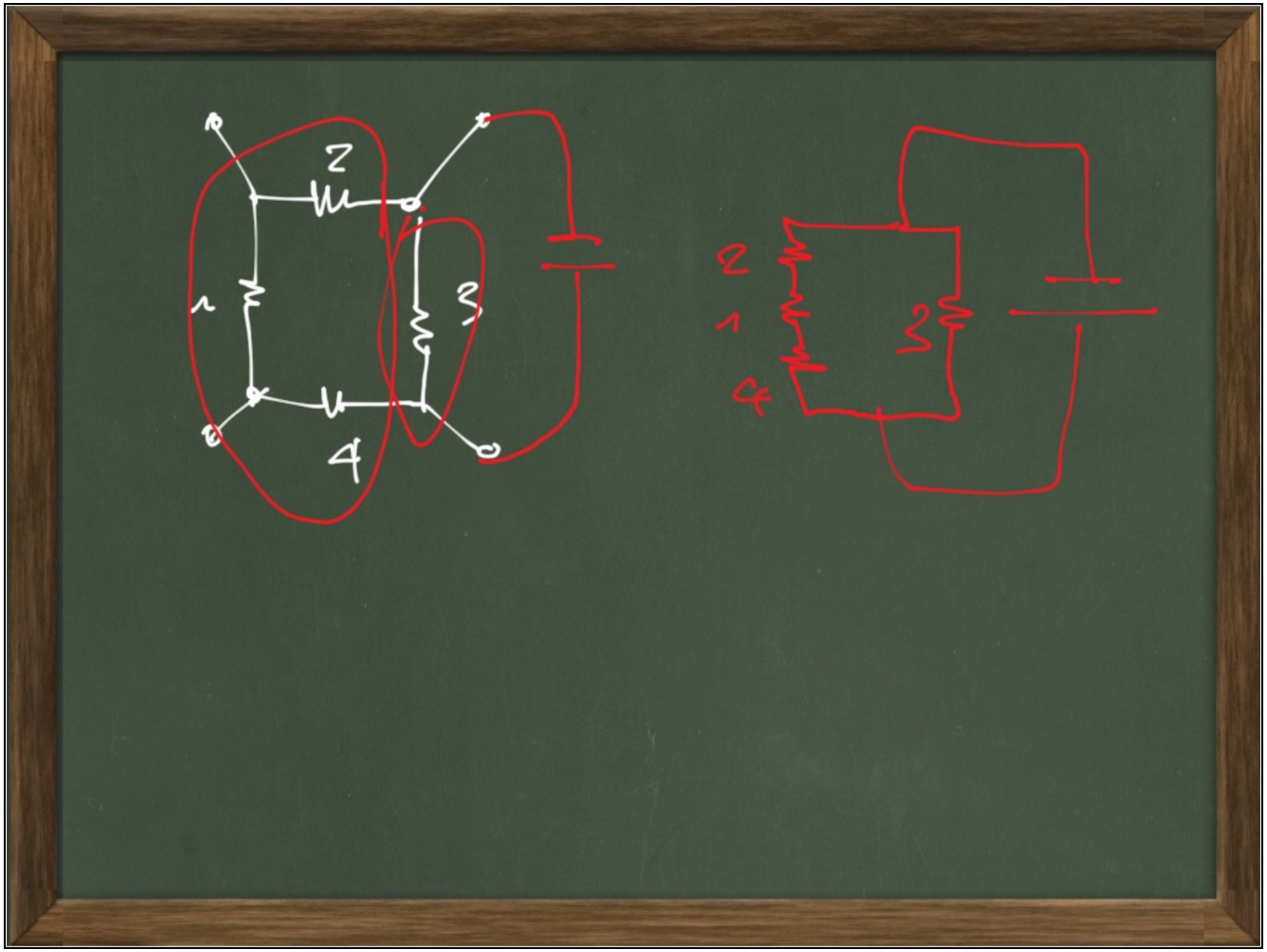

1) serie-parallelo
2) leggi di Kirchhoff
3) sovr. / th. Thevenin
1
serie
...
Req
parallelo

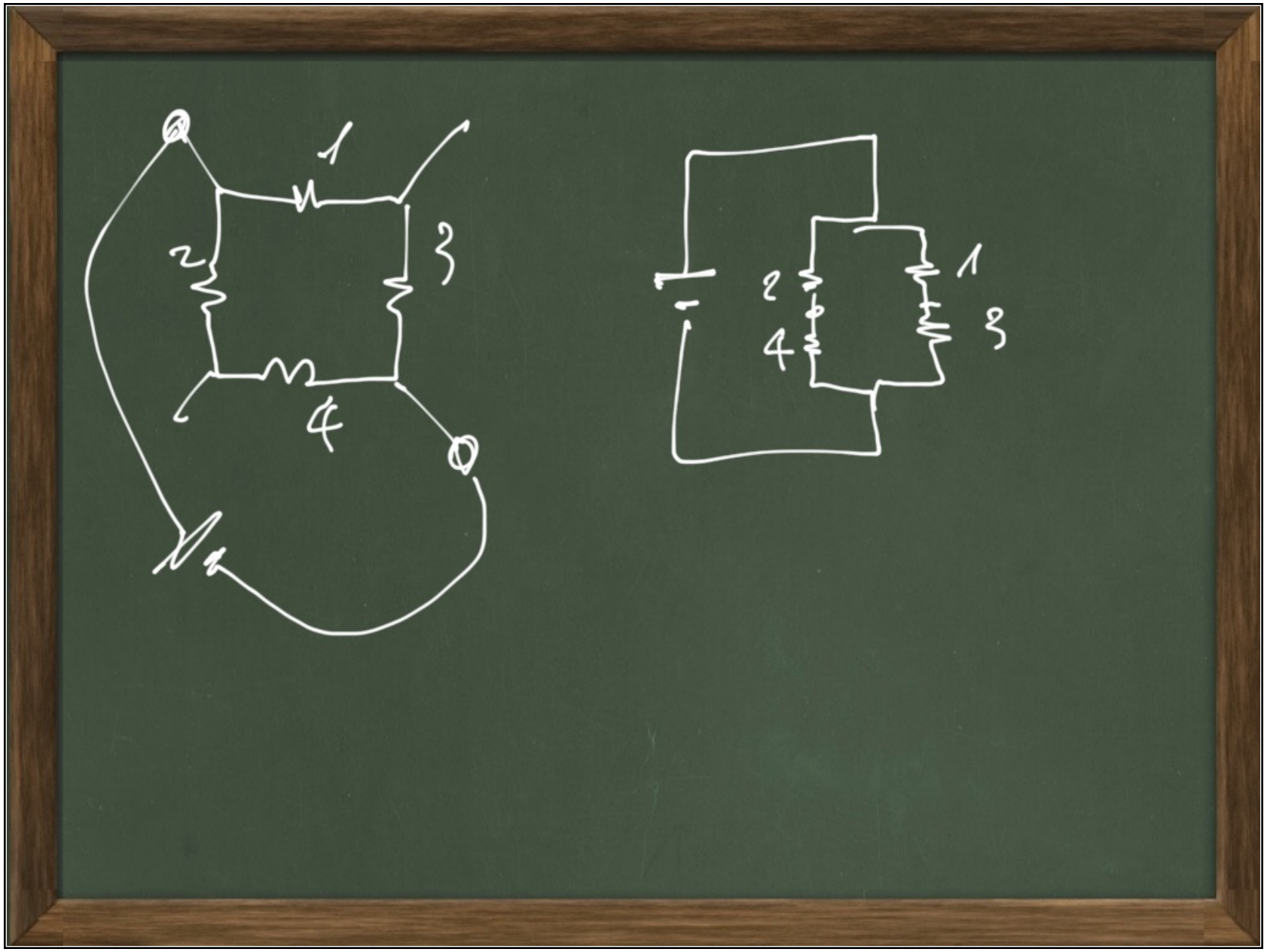

1
2
3
$\mathcal{E} = V_1 + V_2 + \cdots = I(R_1 + R_2 + \cdots)$
$= I R_{eq}$
R_{eq}
$\mathcal{E}$
Serie
Serie
$R_{eq} = R_1 + R_2 + \cdots$

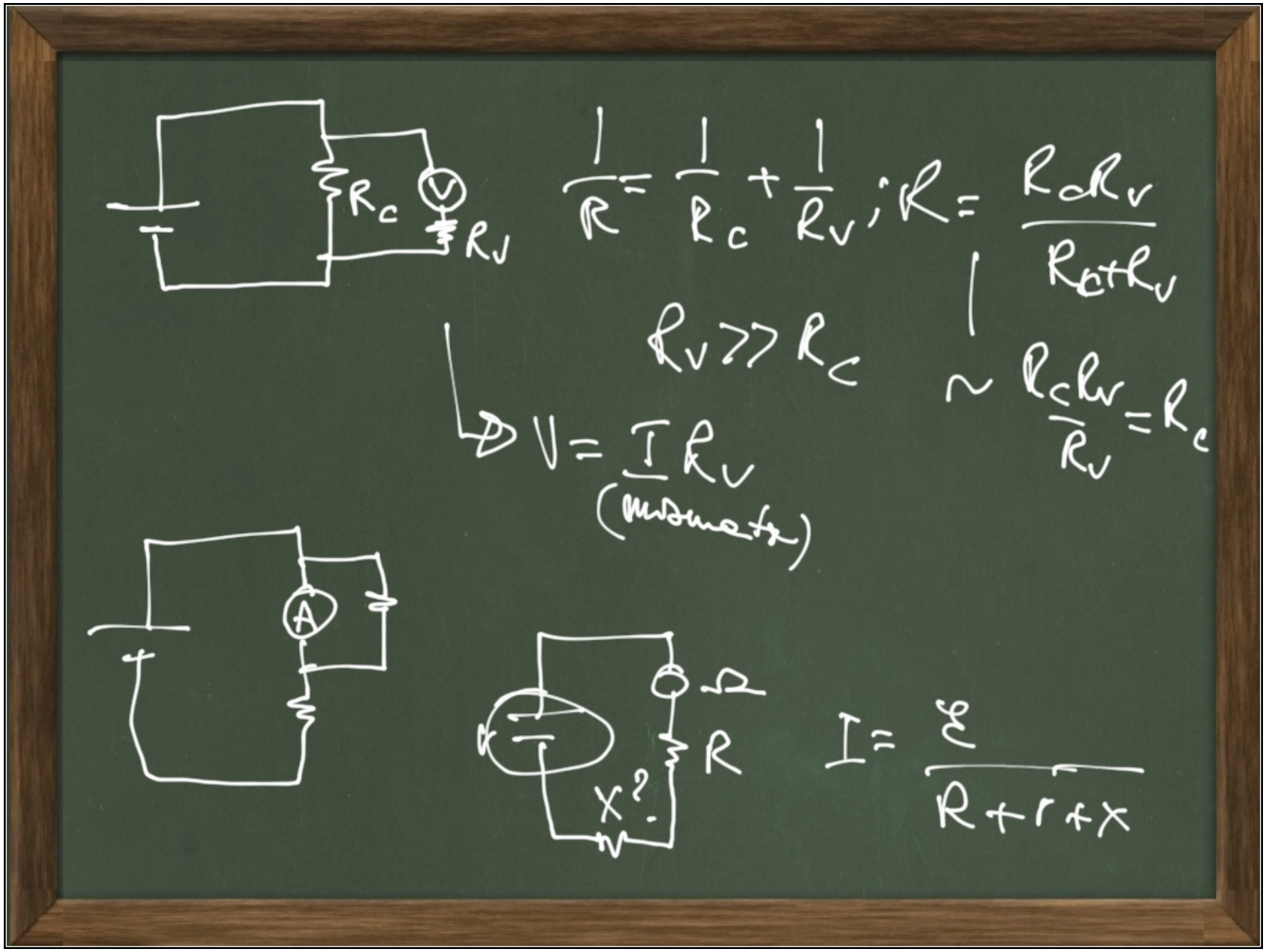

1
2
3
$V = R_1 I_1 = R_2 I_2 =$
$I = I_1 + I_2 + \cdots$
$I = \frac{V}{R_1} + \frac{V}{R_2} + \cdots = \frac{V}{R_{eq}^{por}}$
$\frac{1}{R_{eq}^{par}} = \frac{1}{R_1} + \frac{1}{R_2} + \cdots$
PAR

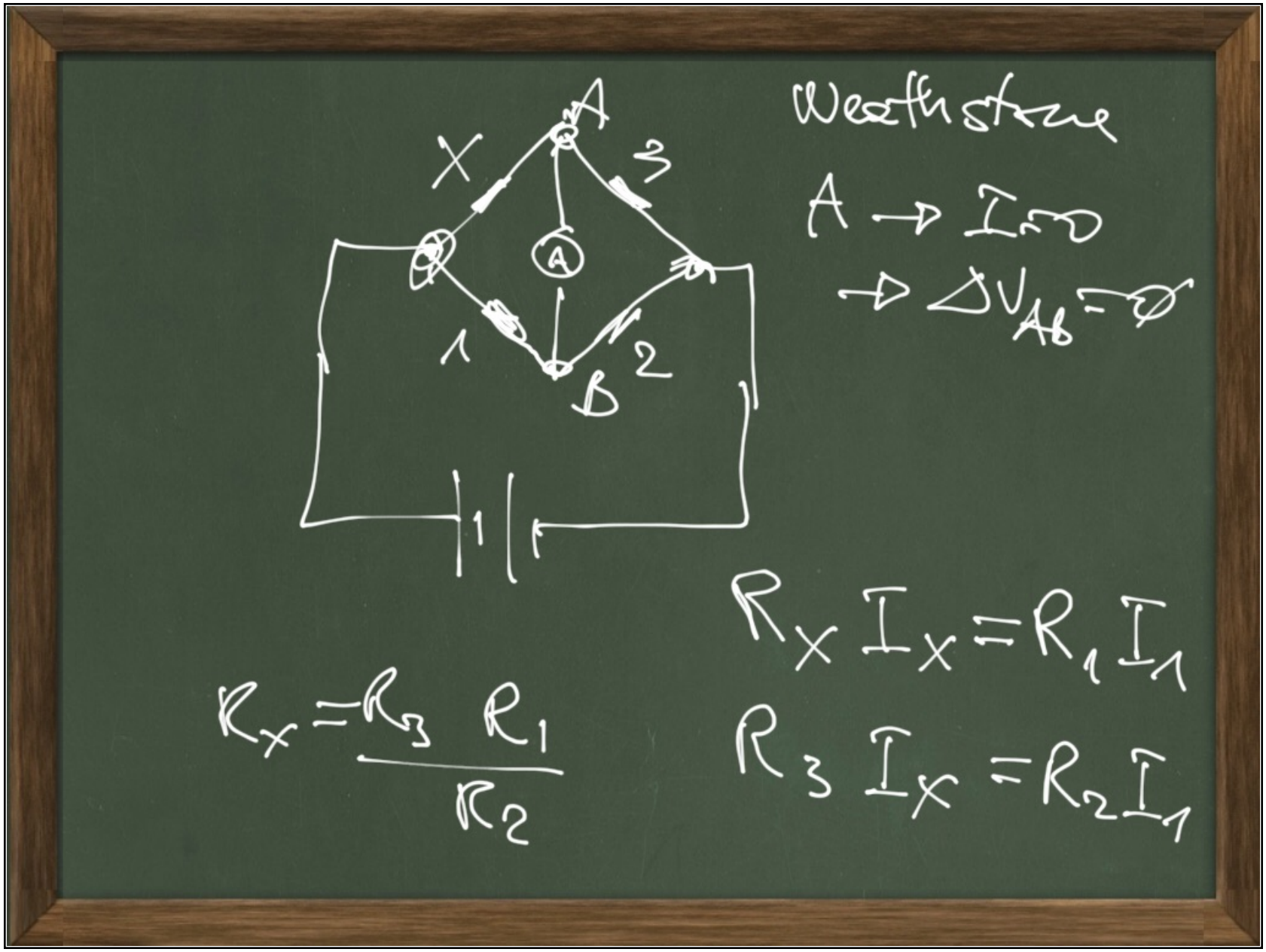

3
2
1
4
$R_{eq} = \frac{R_1 R_2}{R_1 + R_2}$
$R_{eq}' = R_{eq} + R_3 + R_4$




2
1
3
4
2
1
3
4


1
2
3
4
1
2
4
3


R_c
V
R_V
$\frac{1}{R} = \frac{1}{R_c} + \frac{1}{R_V}$; $R = \frac{R_c R_V}{R_c + R_V}$
$R_V \gg R_c$
$\sim \frac{R_c R_V}{R_V} = R_c$
$V = IR_V$
A
R
X?
$I = \frac{\mathcal{E}}{R + r + X}$


Wheatstone
A
X
3
A
1
2
B
1
A → I = 0
→ ΔV_AB = 0
R_X I_X = R_1 I_1
R_3 I_X = R_2 I_1
R_X = R_3 R_1 / R_2