

Progetto Diretto

$$G(s) = \frac{0.2}{(1+s)(1+0.2 \cdot s)}$$

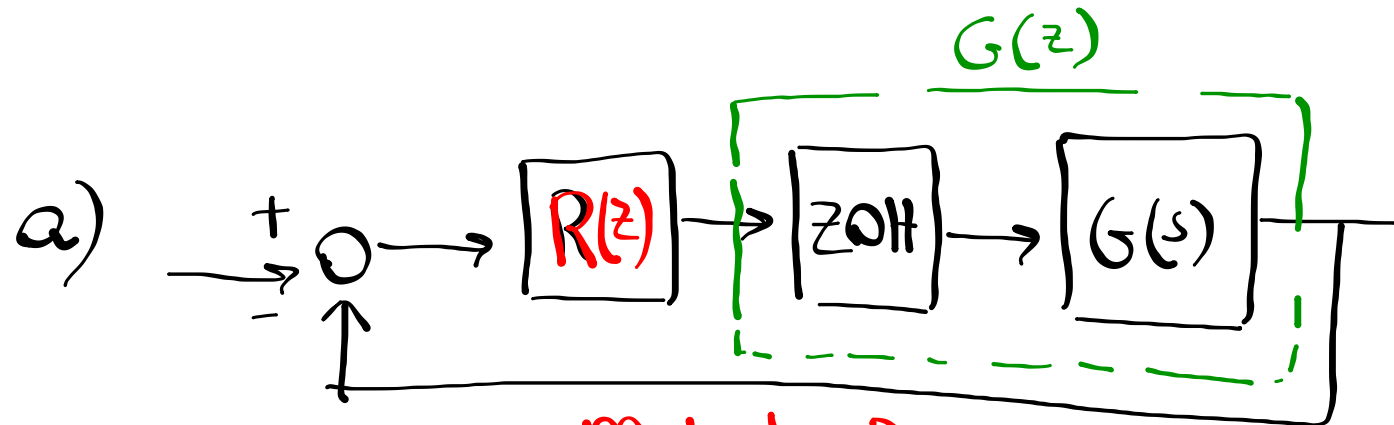
$$R(z) = K \frac{z - z_0}{z - z_p}$$

1. $\ell_r = 0 \Rightarrow$

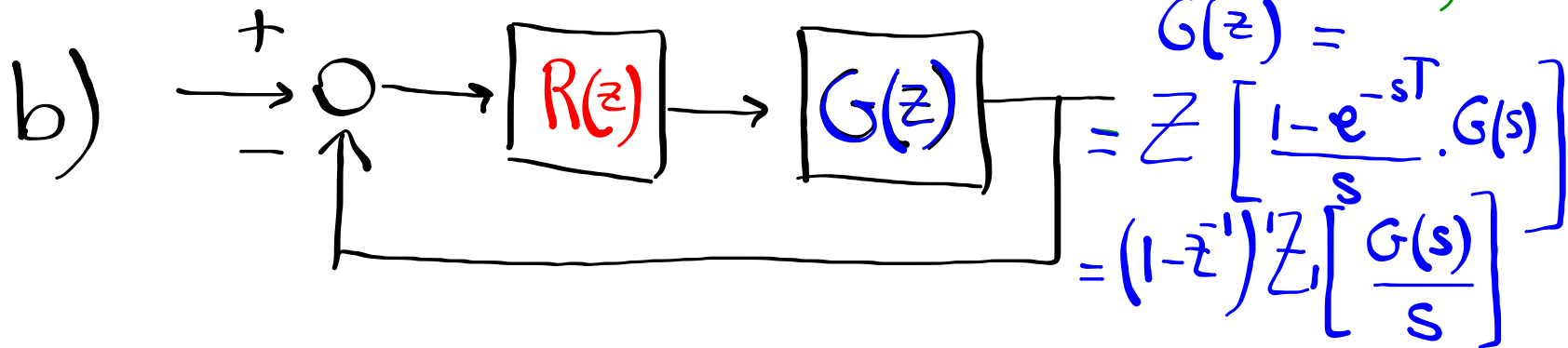
2. $T_a \leq 2.5 \text{ s}$

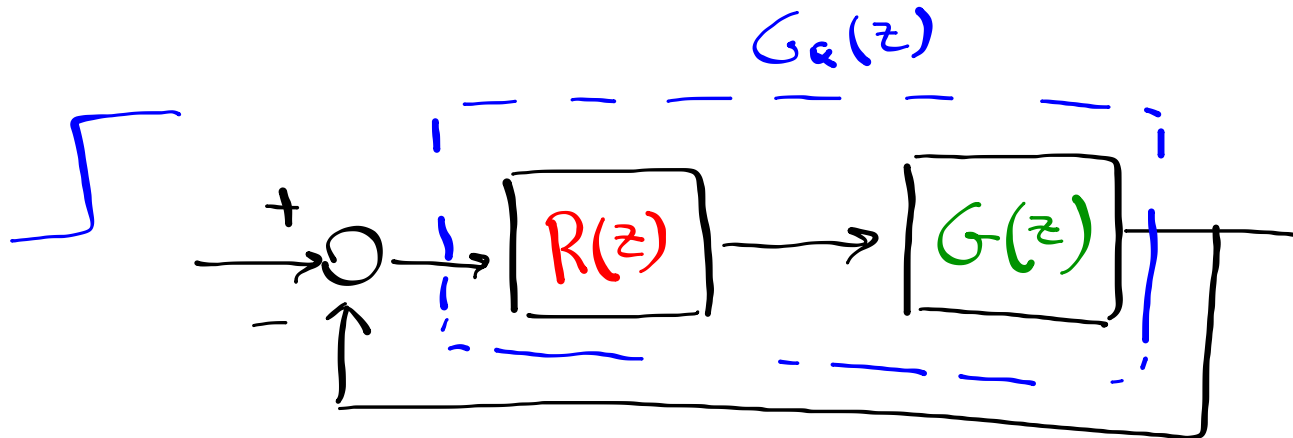
3. $S \leq 5\% \quad (\delta \geq 0.69)$

1. Per avere $e_r = 0$, se il sistema TC non ha poli nell'origine, il guadagno di anello deve includere un polo nell'origine (TC) o in $z = 1$ (TD)



Metodo Diretto





$$G_a(z) = R(z) \cdot G(z) = K \left[\frac{z - z_0}{z - \underbrace{z_p}_{\substack{\downarrow 1 \\ \text{non ha} \\ \text{poli in} \\ z=1}}} \right] \cdot G(z)$$

1. $e_r = 0$

$$z_p = 1$$

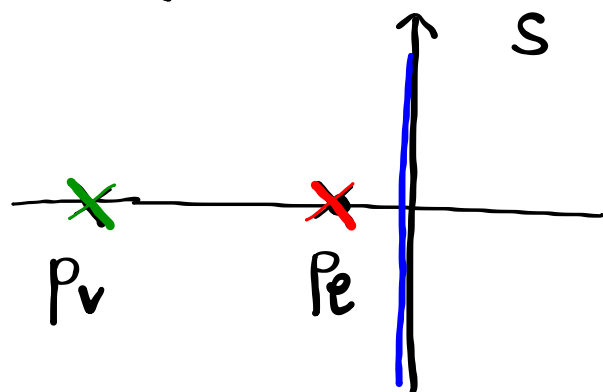
$$R(z) = K \frac{z - z_0}{z - 1}$$

A red arrow points from the red z_0 to a red question mark.

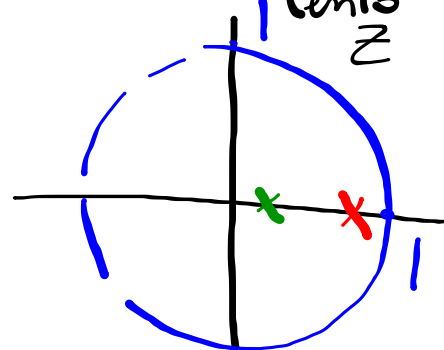
$$z_0 = 0.9048$$

$$G_a(z) = R(z) \cdot G(z) = k \frac{\cancel{z - z_0}}{z - 1} \cdot \frac{\text{num}(z)}{\cancel{(z - 0.9048)} (z - 0.6065)}$$

$\underbrace{\quad}_{\text{lento } z}$
 $\underbrace{\quad}_{\text{veloce}}$



$$z = e^{sT}$$



$$G_a(z) = \underbrace{k}_{\substack{\uparrow \\ \begin{cases} T_a \\ S\% \end{cases}}} \frac{(z - 0.9048)}{(z - 1)} \cdot G(z)$$

