

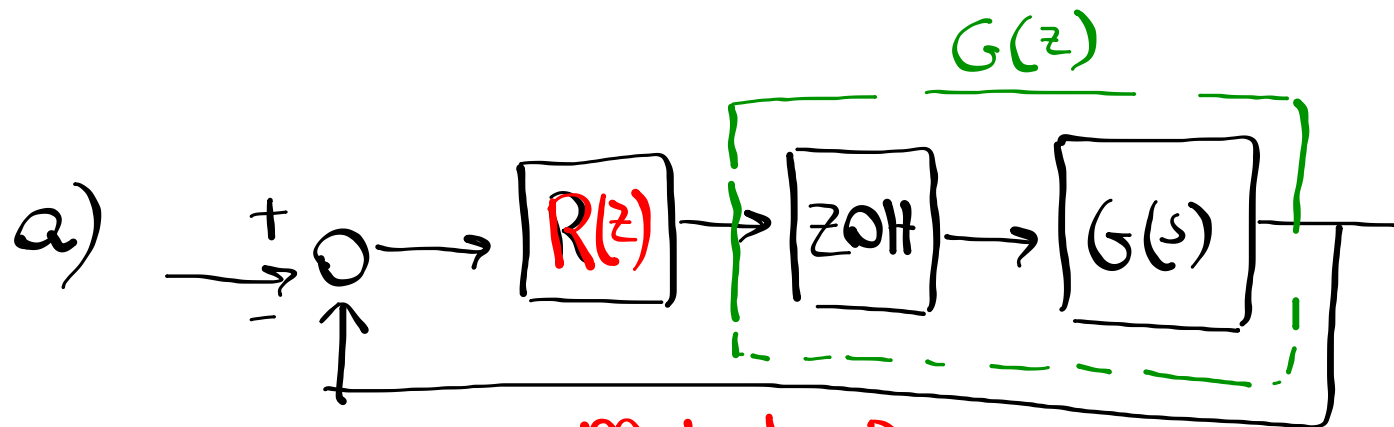
## Progetto Diretto

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

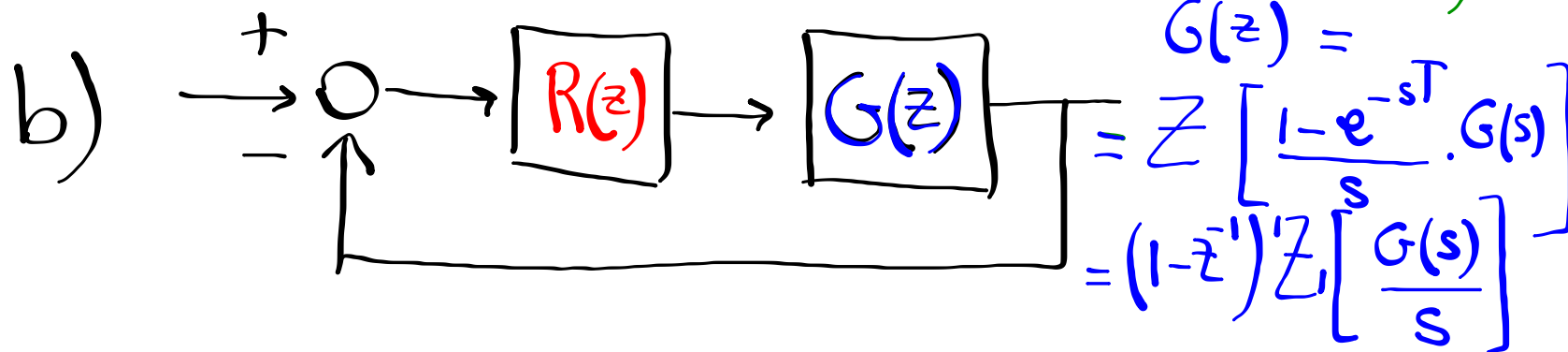
$$R(z) = K \frac{z - z_0}{z - z_p}$$

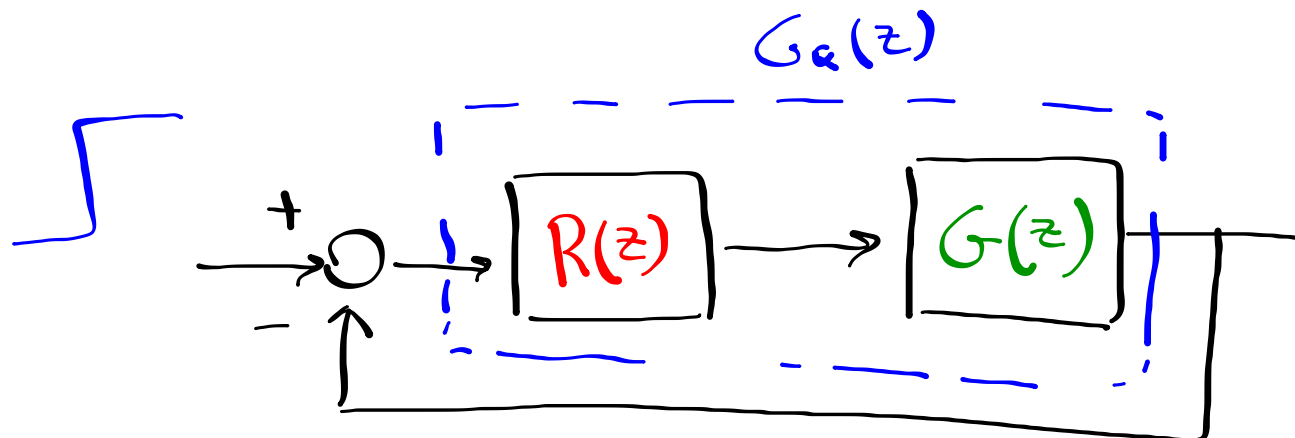
1.  $l_r = 0 \Rightarrow$
2.  $T_a \leq 2.5 \text{ s}$
3.  $S \leq 5 \% (\delta \geq 0.69)$

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





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

$z_p = 1$

non ha poli in  $z = 1$

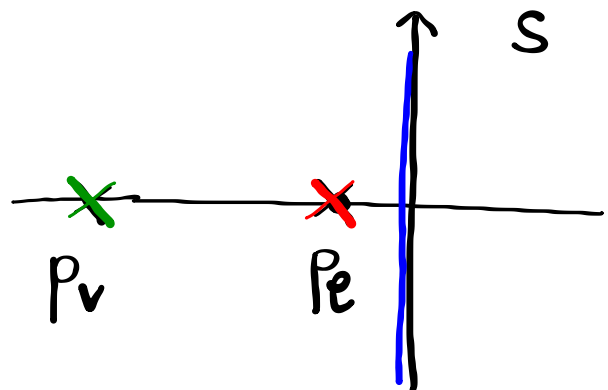
1.  $e_r = 0$

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

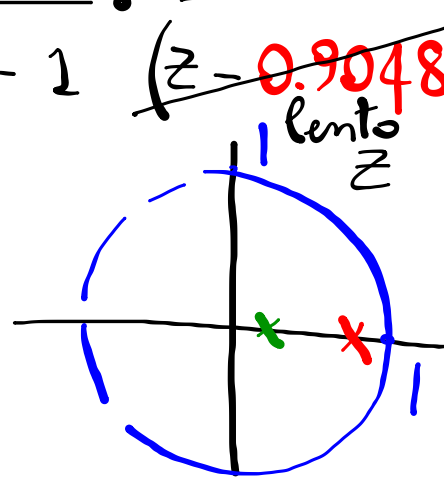
A red arrow points from the  $z_0$  in the numerator to a red question mark.

$$z_0 = 0.9048$$

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



$$z = e^{sT}$$



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



