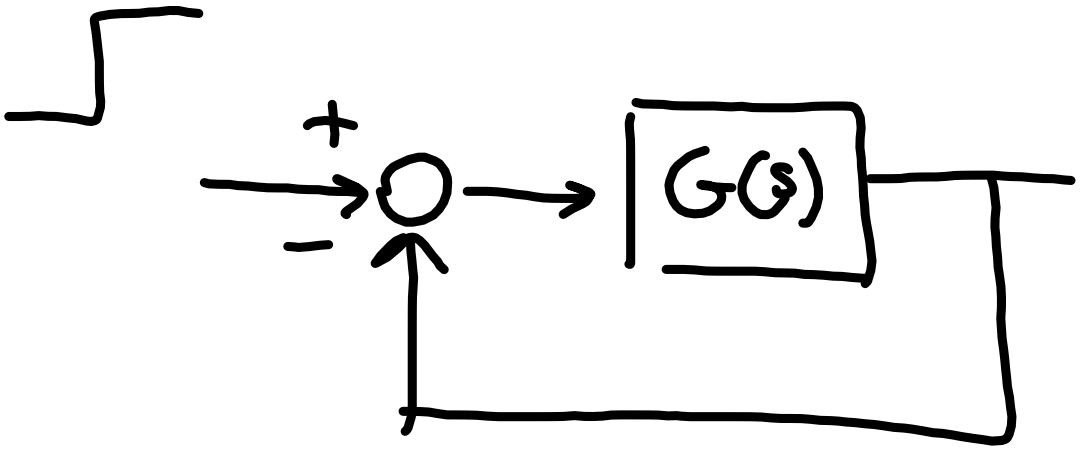
Uso di RESIDUE

$$X(z) = \frac{1}{z^4 + 6z^3 + 13z^2 + 12z + 4} = \frac{B(z)}{A(z)}$$

$$= \frac{1}{(z+2)^2 (z+1)^2} =$$

$$= \frac{c_{11}}{(z+2)^2} + \frac{c_{12}}{z+2} + \frac{c_{21}}{(z+1)^2} + \frac{c_{22}}{z+1}$$

$$G(s) = 0.2\,\frac{(1-2s)}{s(1+10s)(1+0.1s)}$$

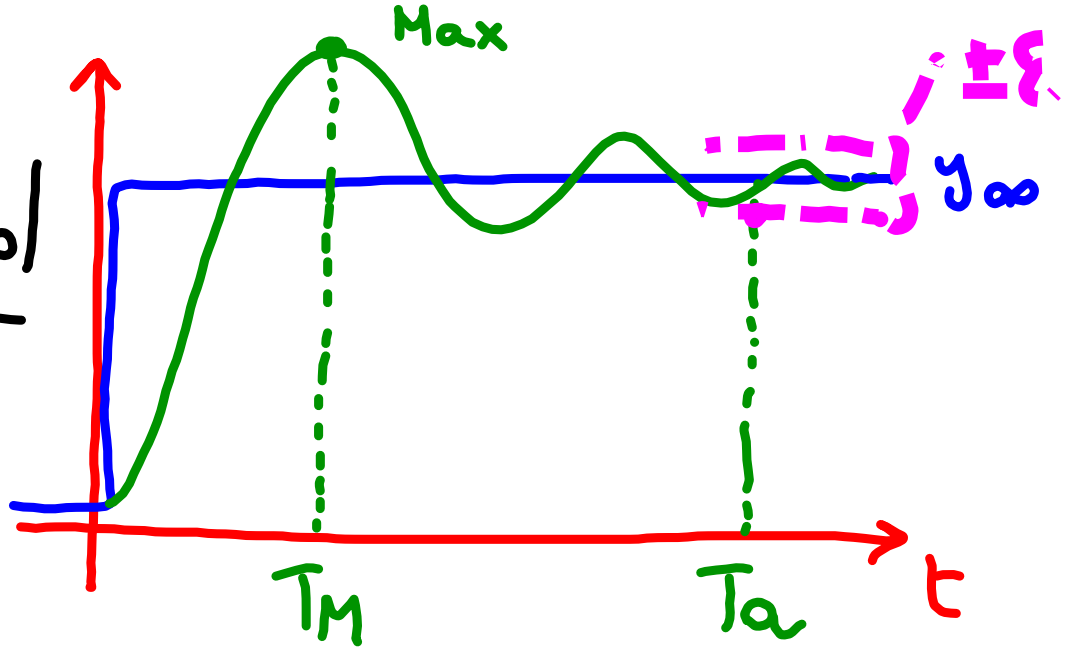


lsiminfo

$$S\% = 100\,\frac{|Max - y_\infty|}{y_\infty}$$

$$= 100\,\frac{1.5372 - 1}{1}$$

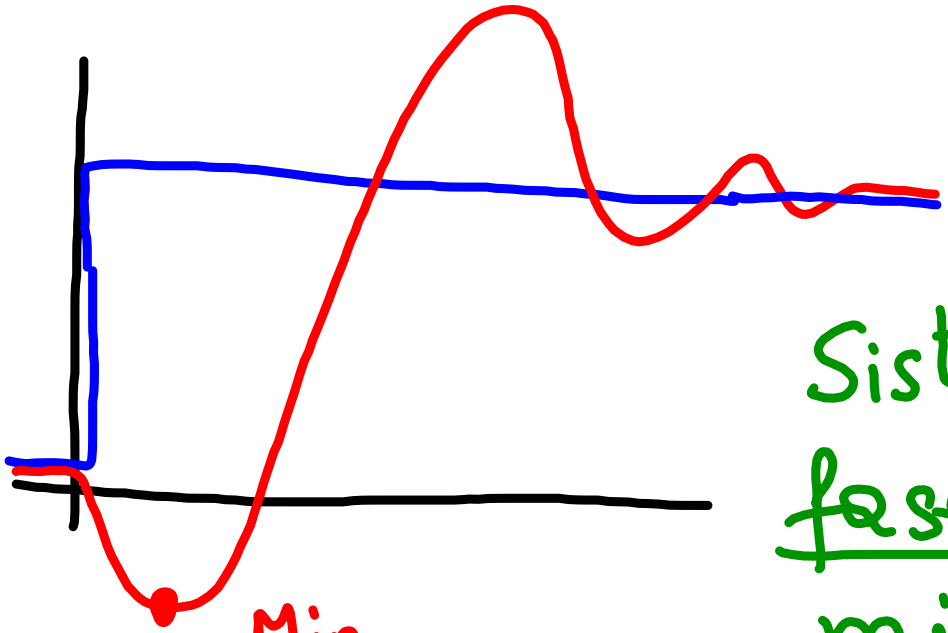
$$= 53.72\,\%$$



$$\lim_{t\to\infty} y(t) = y_\infty$$

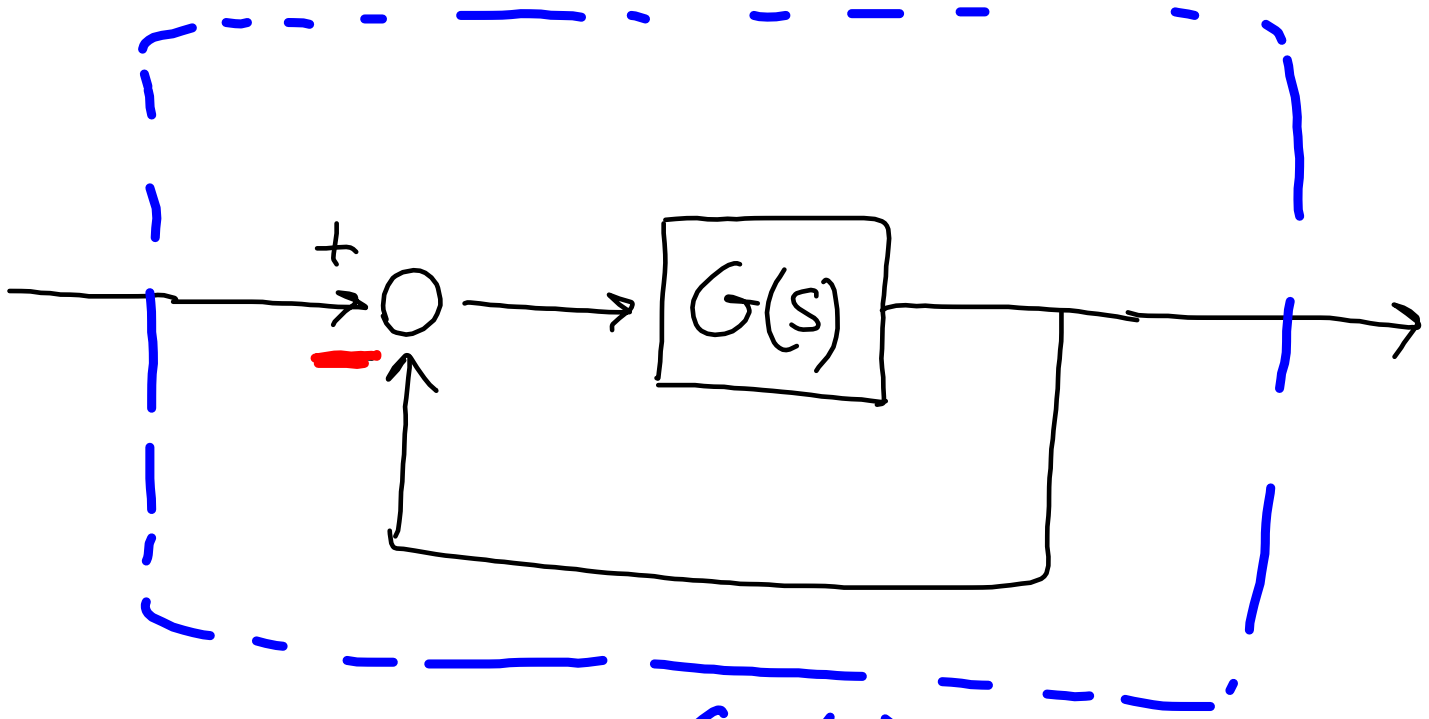
T_a: $t > T_a$ $\quad \left|\frac{y(t) - y_\infty}{y_\infty}\right| \le \varepsilon$

$(5\%) \Rightarrow \varepsilon = 0.05$



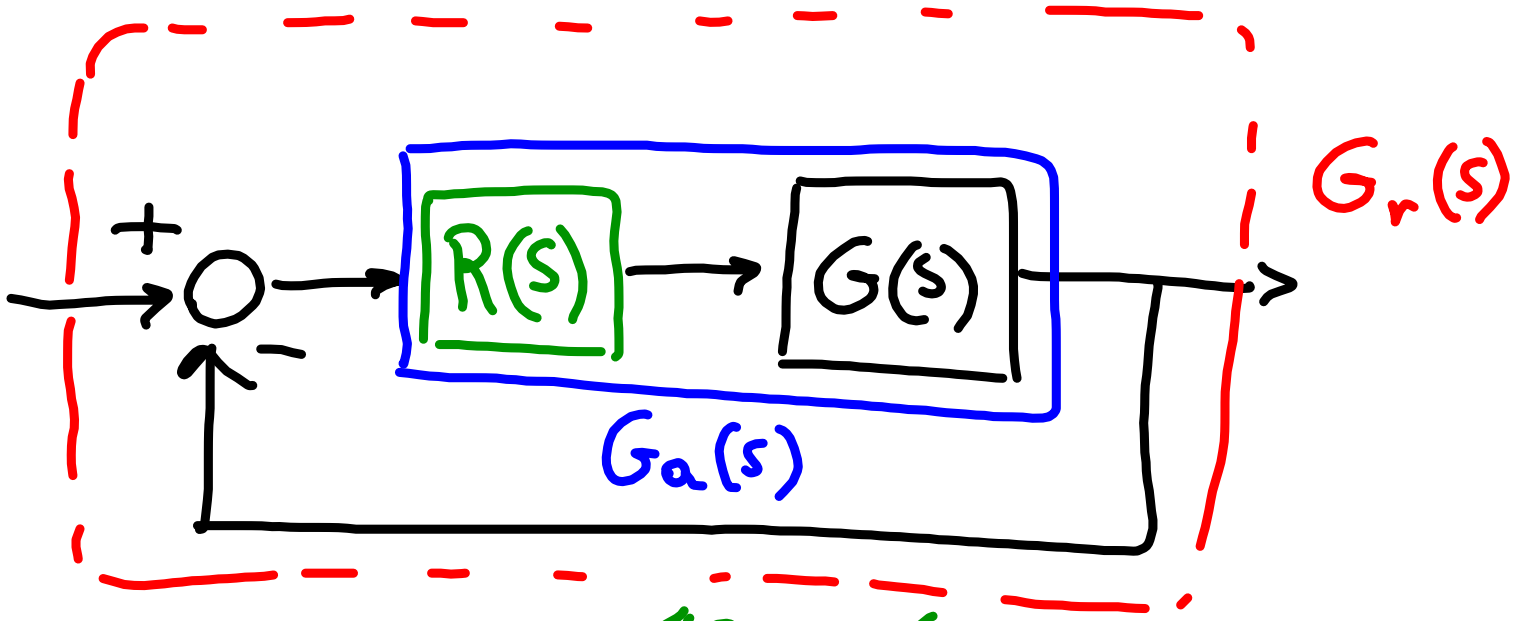
Sistemi a fase non minima

Zero a parte reale positiva



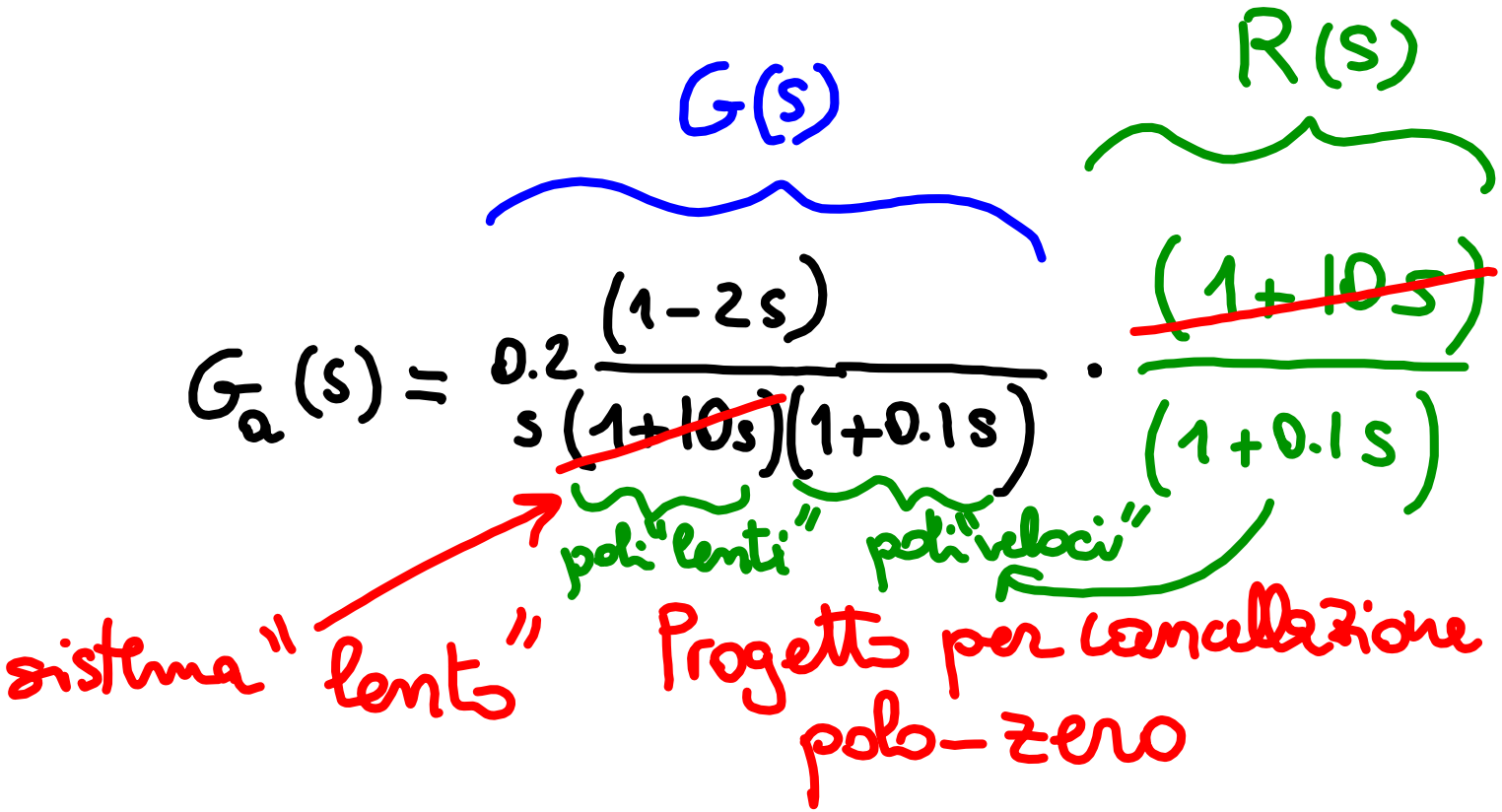
$$G_2(s) = \frac{G(s)}{1+G(s)} = \frac{N(s)}{D(s)}$$

$G_2(s)$



$$R(s) = \frac{10s + 1}{0.1s + 1}$$

$$G_r(s) = \frac{R(s)G(s)}{1 + R(s)G(s)} = \frac{G_a(s)}{1 + G_a(s)}$$


G(s)
R(s)
$G_a(s) = 0.2 \frac{(1-2s)}{s(1+10s)(1+0.1s)} \cdot \frac{(1+10s)}{(1+0.1s)}$
poli "lenti"
poli "veloci"
sistema "lento"
Progetto per cancellazione polo-zero