

SOLUZIONE

$$G(s) = B(s) \frac{1}{1+A(s)} + \frac{A(s)}{1+A(s)} = \frac{A(s)+B(s)}{1+A(s)} = \frac{\frac{\alpha}{s+1} + \frac{\beta}{s+2}}{1 + \frac{\alpha}{s+1}} = \frac{(\alpha + \beta)s + (2\alpha + \beta)}{s^2 + (3 + \alpha)s + (2\alpha + 2)}$$

a)

$$\begin{cases} 3 + \alpha > 0 & \Rightarrow \alpha > -3 \\ 2\alpha + 2 > 0 & \Rightarrow \alpha > -1 \end{cases} \Rightarrow \alpha > -1$$

b)

$$\begin{cases} \frac{2\alpha + \beta}{2\alpha + 2} = -2 \\ (\alpha + \beta)(-3) + (2\alpha + \beta) = 0 \end{cases} \Rightarrow \begin{cases} \alpha = -\frac{8}{11} \\ \beta = \frac{4}{11} \end{cases}$$