

FTRASE 150302 Soluzioni

$$(i) \quad W(s) = \frac{as+b}{s^2+s-2} = \frac{as+b}{(s+2)(s-1)}$$

$$\text{se } b = 2a \quad W(s) = \frac{a}{s-1}$$

$$\text{mentre se } b = -a \quad W(s) = \frac{a}{s+2};$$

$$(ii) \quad W(s) = -\frac{bs+a+b}{(s+2)^2}$$

$$\text{se } a = b \quad W(s) = \frac{-a}{s+2}$$

$$(iii) \quad W(s) = \frac{s+2a-1}{s(s-1)}$$

Non rappresenta il sistema
per qualsiasi valore di a e b .
Si hanno ulteriori semplificazioni

$$\text{se } a = \frac{1}{2}, \quad W(s) = \frac{1}{s-1}$$

$$\text{mentre se } a = 0 \quad W(s) = \frac{1}{s}$$

$$(iv) \quad W(s) = \frac{2bs^2 + 2as + 2b - a}{(2s-1)(s^2+1)} = \frac{bs^2 + as + b - a/2}{(s - \frac{1}{2})(s^2+1)}$$

$$\text{se } a = 0 \quad W(s) = \frac{b}{s - \frac{1}{2}}$$

$$\text{mentre se } b = 0 \quad W(s) = \frac{a}{s^2+1}$$