$$G(s) = \frac{s-10}{(s+19)(s-8)^2}$$

Zeri s=10 molteplicità 1+

Poli s=-19 molteplicità 1 s=8 molteplicità 2

$$G(s) = \frac{s-10}{(s+19)(s-8)^2} = \frac{A}{s+19} + \frac{B}{s-8} + \frac{C}{(s-8)^2}$$

$$g(t) = Ae^{-19t} + Be^{8t} + Cte^{8t}$$

$$\frac{A(s-8)^2 + B(s+19)(s-8) + C(s+19)}{(s+19)(s-8)^2}$$

$$= \frac{As^2 + 16As + 64A + Bs^2 - 152B + 19Bs - 8Bs + Cs + 19C}{(s+19)(s-8)^2}$$

$$\frac{(A+B)s^2 + s(-16A - 11B + C) + (64A - 152B + 19C)}{(s+19)(s-8)^2}$$

A+B=0 -> A=-B

-16 A+11B+C=1

64 A-152B+19C=-10

16B+11B+C=1

-64B-152B+19C=-10

C=-27B+1

-216B+19(-27B+1)=-10

-216B-513B=-29 B=29/729=0.04

A=-0.04

C=-0.07

$$\frac{4}{(s+8)(s-2)} = \frac{A}{s+8} + \frac{B}{s-2} = \frac{A(s-2)+B(s+8)}{(s+8)(s-2)} = \frac{As-2A+Bs+8B}{(s+8)(s-2)} = \frac{s(A+B)-2A+8B}{(s+8)(s-29}$$

A+B=0 → A=-B

-2A+8B=4

2B+8B=4

10B=4 B=0.4 → A=-0.4

$$g(t) = -0.4e^{-8t} + 0.4e^{2t}$$