Overshot

- Demostrar que un sistema que opera a:

  - 16% de overshot

$$0,16 = e^{-\zeta\pi/\sqrt{1-\zeta^2}} \quad \boxed{\therefore \text{ Donde } \zeta = 0,504}$$

$$\ln(0,16) = -\zeta\pi/\sqrt{1-\zeta^2}$$

$$\ln^2(0,16) = \frac{\zeta^2\pi^2}{1-\zeta^2}$$

$$\ln^2(0,16) - \ln^2(0,16)\zeta^2 = \zeta^2\pi^2$$

$$\ln^2(0,16) = \zeta^2\pi^2 + \ln^2(0,16)\zeta^2$$

$$\ln^2(0,16) = \zeta^2(\pi^2 + \ln^2(0,16))$$

$$\zeta = \sqrt{\frac{\ln^2(0,16)}{\pi^2+\ln^2(0,16)}}$$

$$\zeta = \frac{\ln(0,16)}{\sqrt{\pi^2+\ln^2(0,16)}}$$

$$\boxed{\zeta = 0,5003} \quad \sim 0,504$$

Por lo tanto:

Plano s