

Linearne dif. enačbe 2. reda

(s konstantnimi koeficienti)

$$ay'' + by' + cy = g(x)$$

$$y(x) = C_1 y_1(x) + C_2 y_2(x)$$

homogena enačba: $g(x)=0$

$$y_{1,2}(x) = e^{r_{1,2}x}$$

$$r_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

- $r_{1,2} \in \mathbb{R}, r_1 \neq r_2$

- $r_{1,2} \in \mathbb{C}$

- $r_1 = r_2$

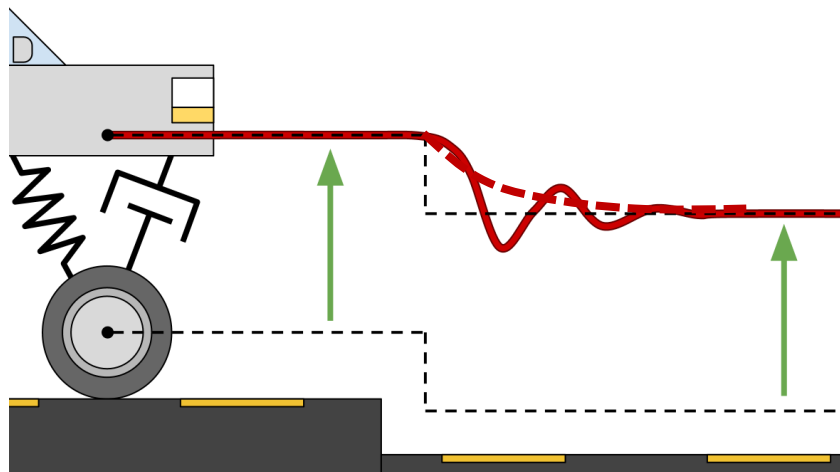


$$m\ddot{x} + \beta\dot{x} + kx = 0$$

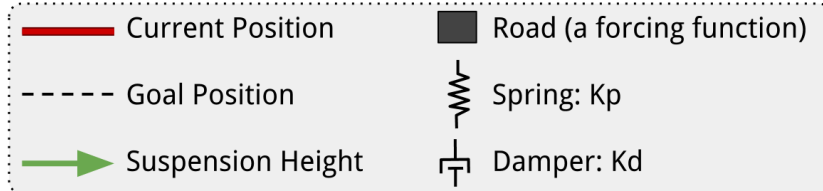
$$\omega_{1,2} = -\beta' \pm i\omega' \quad \omega' = \sqrt{\omega_0^2 - \beta'^2}$$

$$x(t=0) = 0 \quad \dot{x}(t=0) = v_0$$

$$x(t) = \frac{v_0}{\omega'} e^{-\beta't} \sin \omega't$$



— podkritično
 - - - (nad)kritično



<https://www.myphysicslab.com/engine2D/car-suspension-en.html>