

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:  $g(x)=0$

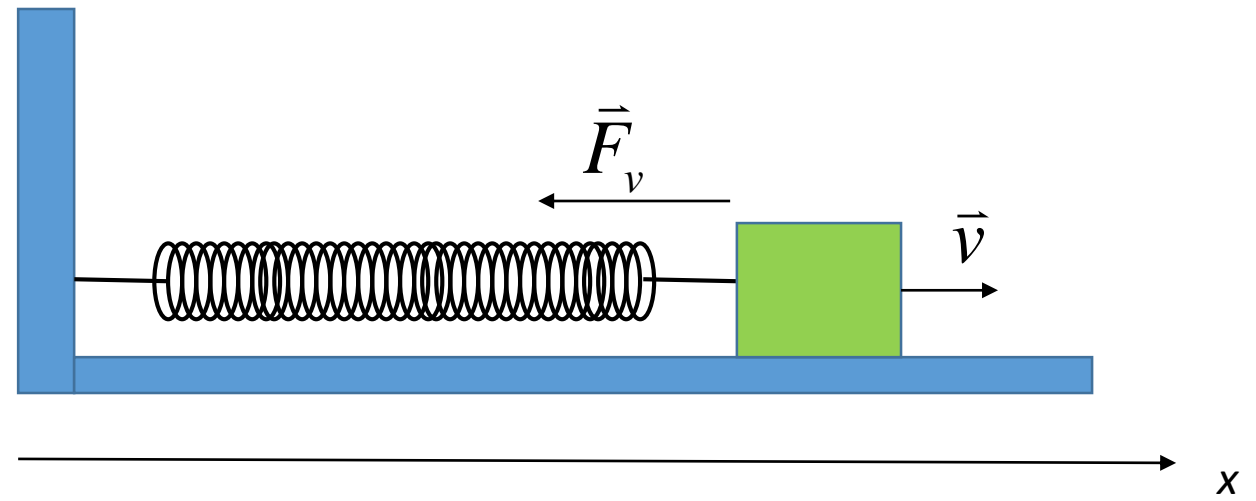
$$y_{1,2}(x) = e^{r_{1,2}x}$$

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

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

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

- $r_1 = r_2$



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

$$\omega_{1,2} = \pm i\omega_0$$

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

$$x(t) = \frac{v_0}{2i\omega_0} \left[ e^{i\omega_0 t} - e^{-i\omega_0 t} \right]$$

## Kompleksna števila

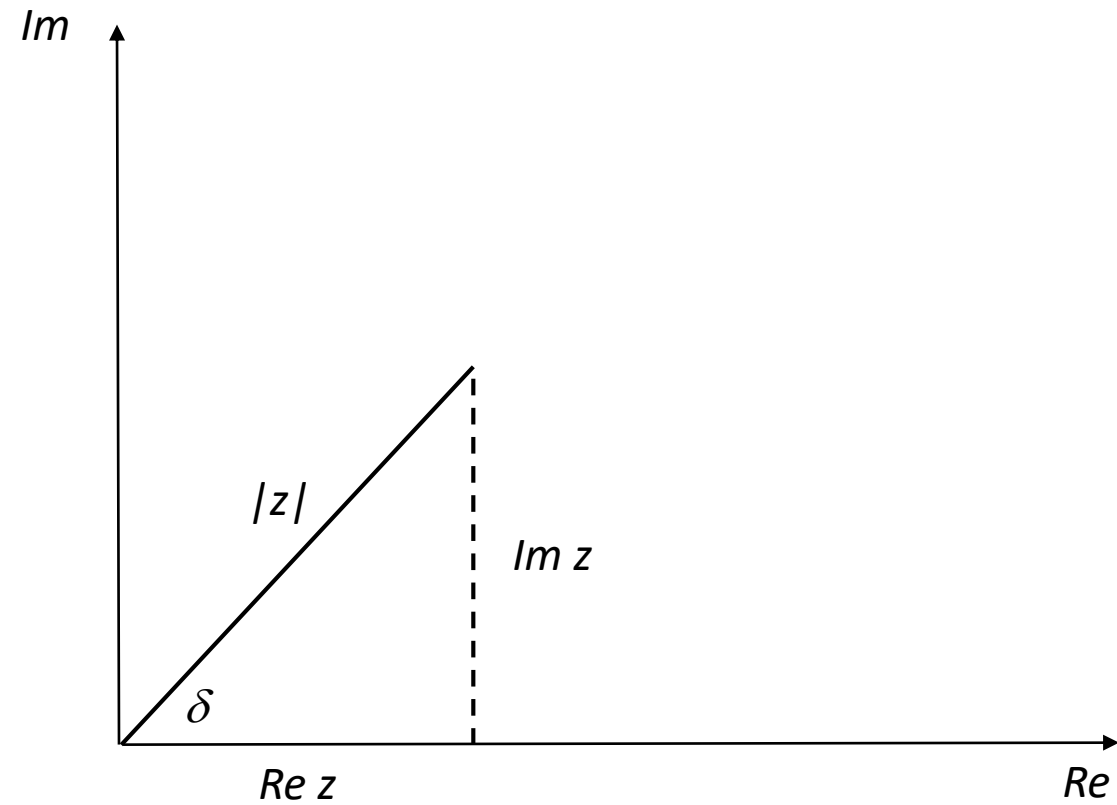
$$z = \operatorname{Re}(z) + i \operatorname{Im}(z)$$

$$z = |z| e^{i\delta}$$

$$|z| = \sqrt{(\operatorname{Re}(z))^2 + (\operatorname{Im}(z))^2}$$

$$\tan \delta = \frac{\operatorname{Im}(z)}{\operatorname{Re}(z)}$$

$$e^{ix} = \cos(x) + i \sin(x)$$



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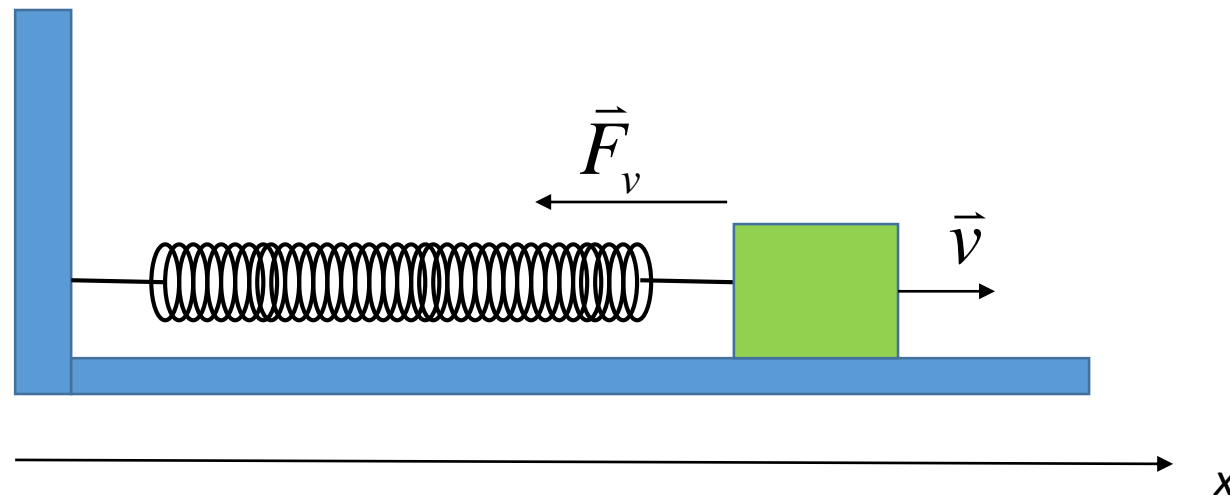
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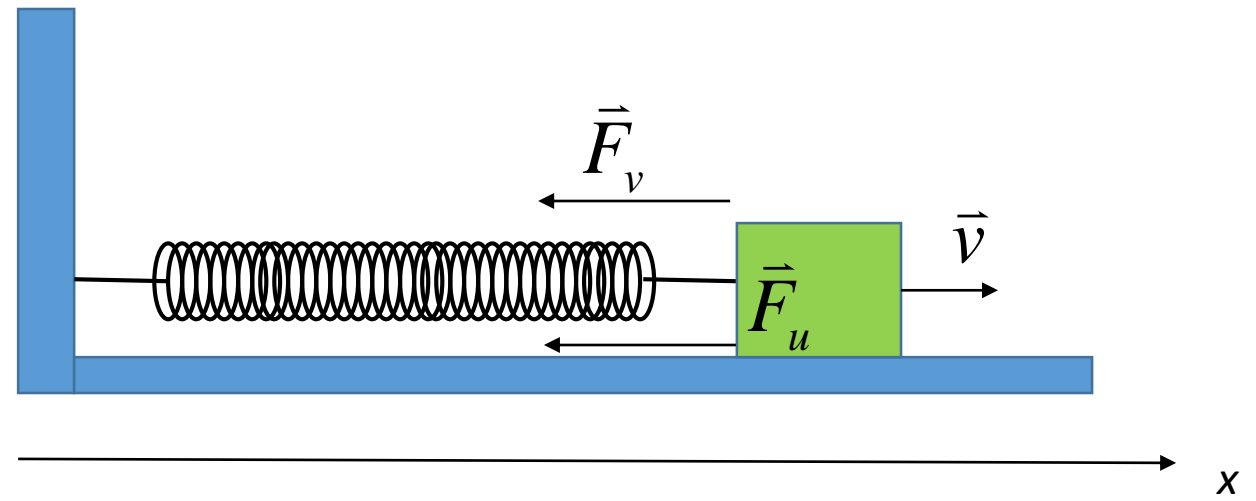
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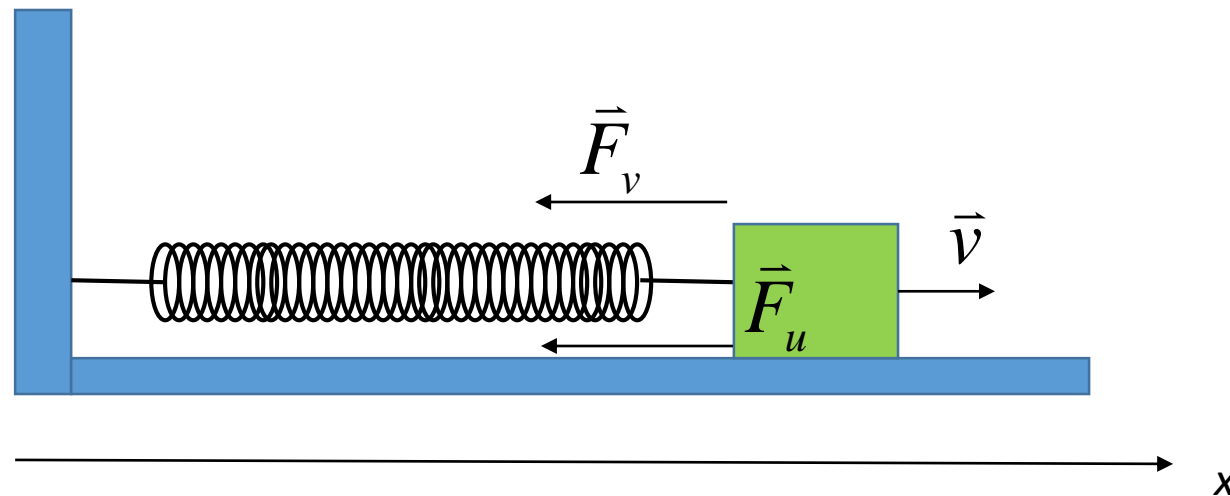
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