Linearne dif. enačbe 2. reda

(s konstantnimi koeficienti)

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

nehomogena enačba: $g(x) \neq 0$

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nehomogena enačba: *g(x)≠0*

$$y(x) = y_{\text{hom}}(x) + y_{part}(x)$$

$$y_{\text{hom}}(x) = ae^{\omega_1 x} + be^{\omega_2 x}$$

$$y_{part}(x) = A(x)e^{\omega_1 x} + B(x)e^{\omega_2 x}$$

$$A(x) = \int \frac{g(x)y_2(x)}{y_1'(x)y_2(x) - y_1(x)y_2'(x)}$$

$$B(x) = -\int \frac{g(x)y_1(x)}{y_1'(x)y_2(x) - y_1(x)y_2'(x)}$$

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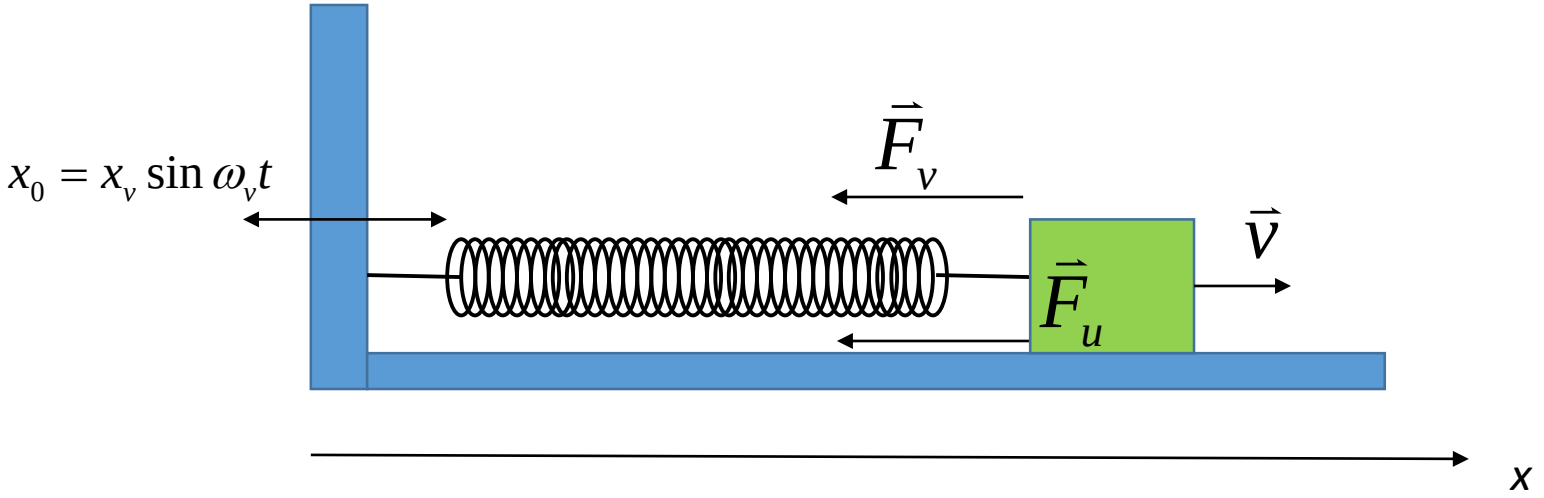

$$m\ddot{x}+\beta\dot{x}+kx=x_v \sin \omega_v t$$

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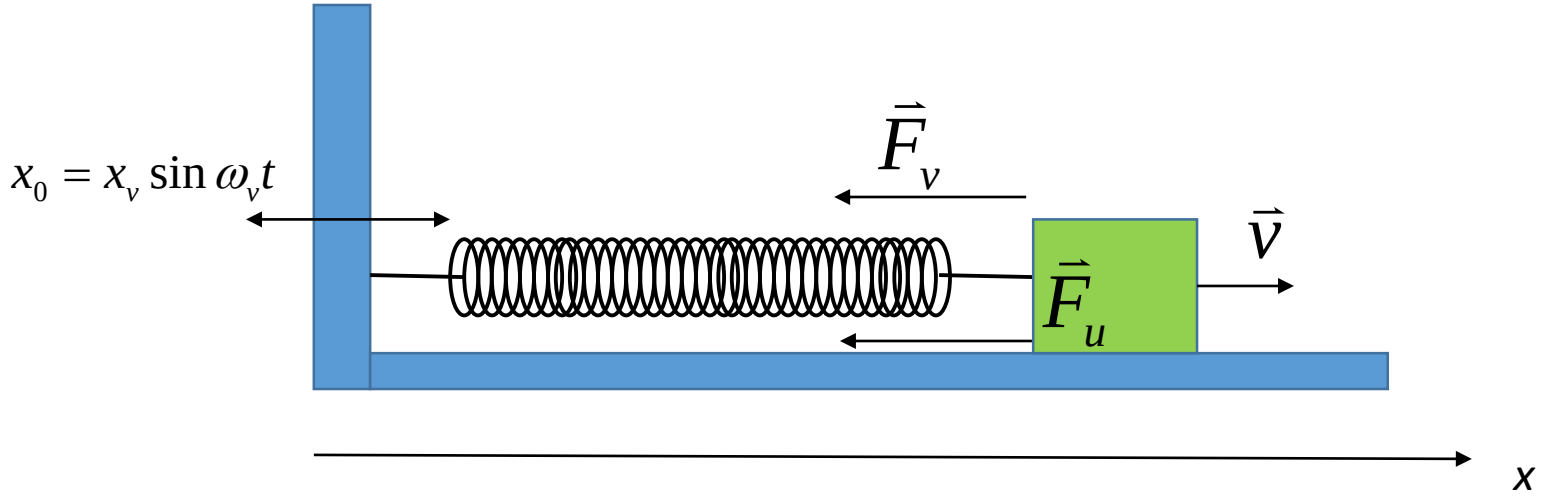

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$$\omega_{1,2}=-\beta'\pm i\omega' \quad \omega'=\sqrt{\omega_0^2-\beta'^2}$$

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

$$x(t)=e^{-\beta' t}\left[\frac{c(\omega_v,\omega',\beta)}{\omega'}\sin\omega' t - x_b\cos\omega' t\right]+$$

$$+x_a \sin\omega_v t + x_b \cos\omega_v t$$

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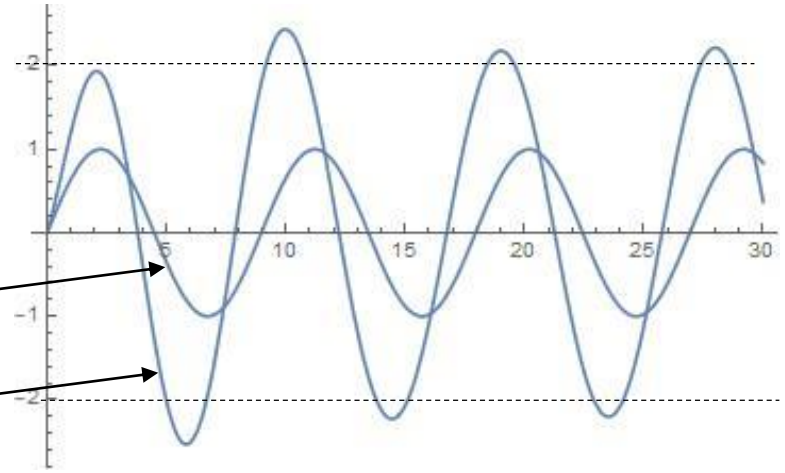
$\beta'=0{,}2\ \omega_0$

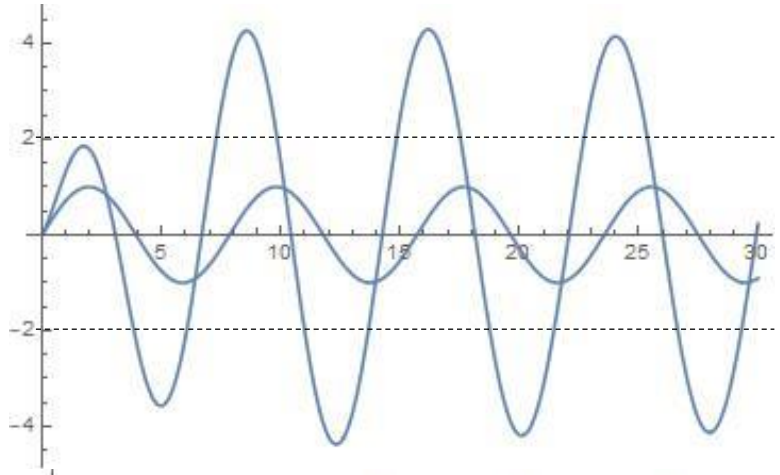
$\omega_v=0{,}7\ \omega_0$

vsiljeno nihanje

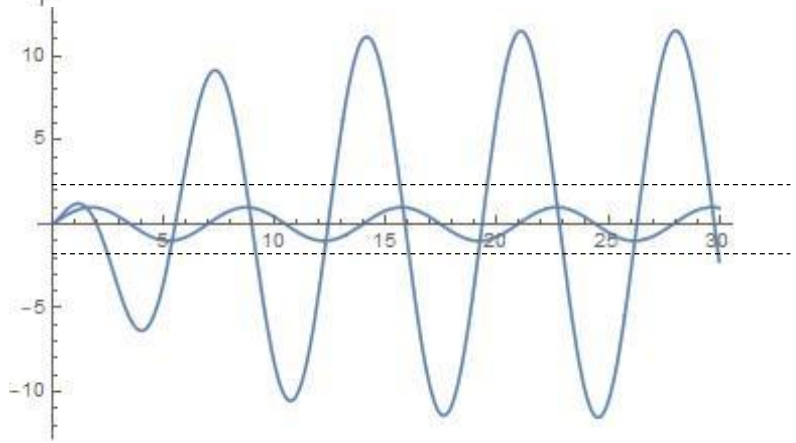
odziv nihala



$\omega_v=0{,}8\ \omega_0$



$\omega_v=0{,}9\ \omega_0$



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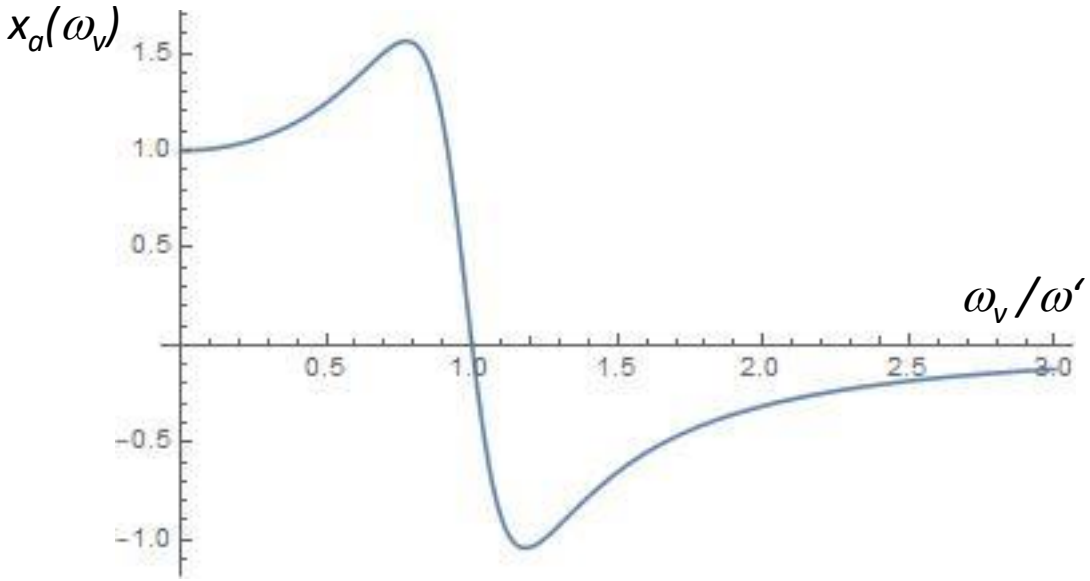

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