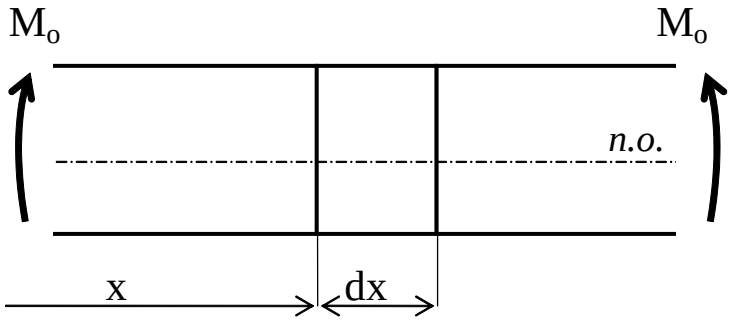
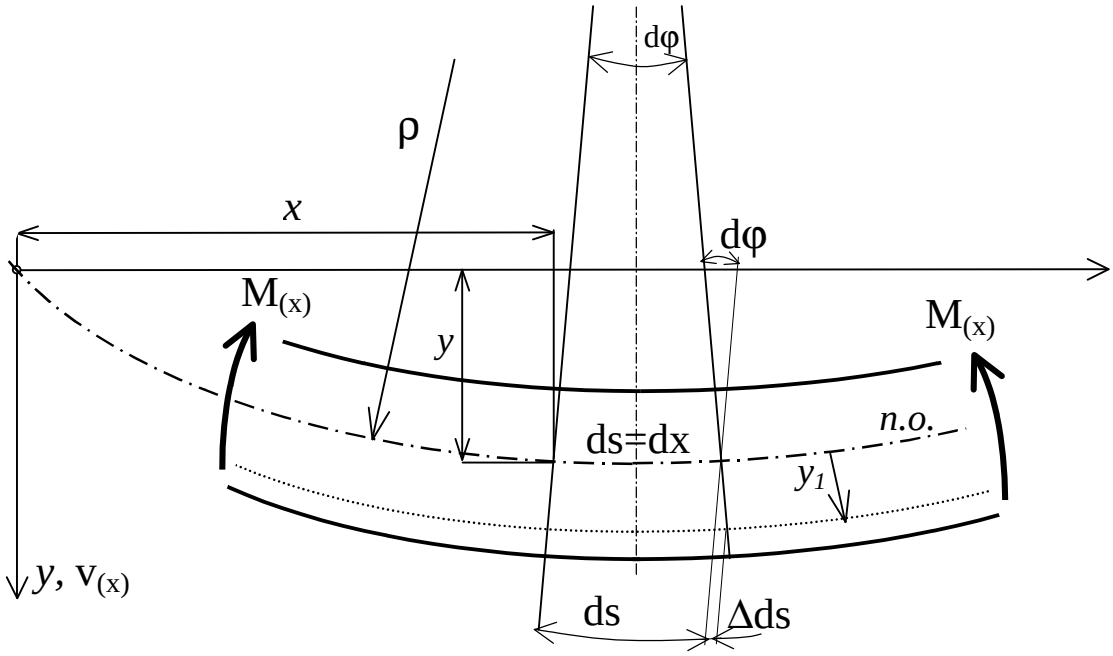
NORMÁLOVÉ NAPÄTIE V OHÝBANOM NOSNÍKU



DEFORMÁCIA PRIAMYCH NOSNÍKOV



$$\varepsilon = \frac{\Delta \mathrm{ds}}{\mathrm{ds}} = \frac{y_1\, d\varphi}{\rho\, d\varphi} = \frac{y_1}{\rho}$$

$$\sigma = \frac{\mathrm{M}_{(x)}}{\mathrm{J}_z} y_1 \qquad \varepsilon = \frac{\sigma}{\mathrm{E}} \qquad \Rightarrow \qquad \frac{1}{\rho} = \frac{\mathrm{M}_{(x)}}{\mathrm{E}\,\mathrm{J}_z}$$

z matematiky platí:

$$\rho = \pm \frac{(1 + y'^2)^{\frac{2}{3}}}{y''}$$

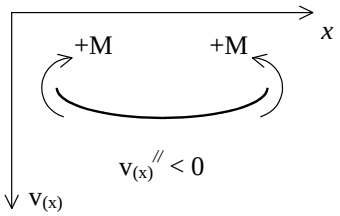
y je poranica priehybovej čiary – priehyb.

potom pre malé priehyby nosníkov:

$$y'' = v_{(x)}'' = \pm \frac{M_{(x)}}{E\,J_Z}$$

približná diferenciálna rovnica priehybovej čiary

Pre znamienkovú dohodu momentov:

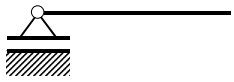
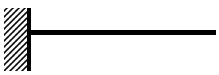
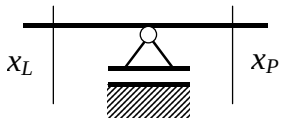
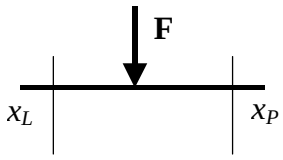
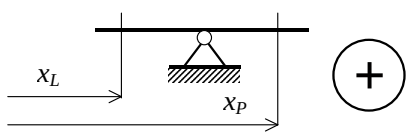
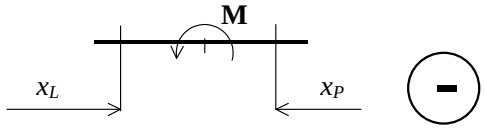


$$v_{(x)}'' = -\frac{M_{(x)}}{E\,J_Z}$$

$$\varphi_{(x)} = v_{(x)}' = -\frac{1}{E\,J_Z}\int M_{(x)}\,dx + c_1$$

$$v_{(x)} = -\frac{1}{E\,J_Z}\iint M_{(x)}\,dx\,dx + c_1\,x + c_2$$

Integračné konštanty c_1 , c_2 určíme z **okrajových podmienok**:

	$V_{(x)} = 0$
	$V_{(x)} = 0$ $V_{(x)}' = \varphi_{(x)} = 0$
	$V_{(xL)} = 0 \qquad V_{(xP)} = 0$ $V_{(xL)}' = \pm V_{(xP)}'$
	$V_{(xL)} = V_{(xP)}$ $V_{(xL)}' = \pm V_{(xP)}'$
	

KRÚTENIE HRIADEĽOV