Kroužek s příčkou - určení vnitřních statických účinků v bodě B
pro poddajnou příčku a pro tuhou příčku.

M : MB + F·R/2 · sin(φ)+NB·R·(1−cos(φ));

$$\frac{F\,R\,\sin(\varphi)}{2}+NB\,R\,(1-\cos(\varphi))+MB$$

U : integrate(M^2/(2·E·J)·R, φ,0,%pi/2);

$$R\,(\frac{(3\,\pi-8)\,NB^{2}\,R^{2}}{4}+\frac{F\,NB\,R^{2}}{2}+\frac{\pi\,F^{2}\,R^{2}}{16}+(\pi-2)\,MB\,NB\,R+F$$

$$MB\,R+\frac{\pi\,MB^{2}}{2})\,/$$

ratsimp(%);

$$((12\,\pi-32)\,NB^{2}+8\,F\,NB+\pi\,F^{2})\,R^{3}+$$

$$((16\,\pi-32)\,MB\,NB+16\,F\,MB)\,R^{2}+8\,\pi\,MB^{2}\,R\,/$$

φB : diff(U, MB);

$$\frac{R\,((\pi-2)\,NB\,R+F\,R+\pi\,MB)}{2\,E\,\mathcal{J}}$$

vB : diff(U, NB);

$$\frac{R\left|\frac{(3\,\pi-8)\,NB\,R^{2}}{2}+\frac{F\,R^{2}}{2}+(\pi-2)\,MB\,R\right|}{2\,E\,\mathcal{J}}$$

reseni :linsolve([φB = 0, vB = − NB·R/(E·S/2)],[NB, MB]);

$$\left[NB=\frac{F\,R^{2}\,(\pi\,S-4\,S)}{R^{2}\,(\pi^{2}\,S-8\,S)+8\,\pi\,\mathcal{J}},MB=-\frac{F\,R^{3}\,(2\,\pi\,S-6\,S)+8\,F\,\mathcal{J}\,R}{R^{2}\,(\pi^{2}\,S-8\,S)+8\,\pi\,\mathcal{J}}\right]$$

DeltaPricky : −2·ev(NB, reseni)·R/(E·S/2);

$$-\frac{4\,F\,R^{3}\,(\pi\,S-4\,S)}{E\,S\left|R^{2}\,(\pi^{2}\,S-8\,S)+8\,\pi\,\mathcal{J}\right|}$$

ratsimp(%);

$$-\frac{(4\,\pi-16)\,F\,R^{3}}{(\pi^{2}-8)\,E\,R^{2}\,S+8\,\pi\,E\,\mathcal{J}}$$

reseniTUHpric :linsolve([φB = 0, vB = 0],[NB, MB]);

$$\left[NB=\frac{(\pi-4)\,F}{\pi^{2}-8},MB=-\frac{(2\,\pi-6)\,F\,R}{\pi^{2}-8}\right]$$