

# Lösung mit Arbeitssatz:

Anteil aus Kragarm:

$$\int \frac{M_0 M_1}{EI} dx = \frac{8 r^3 F}{3 EI}$$

$$\delta_1 := \frac{8 r^3 F}{3 EI}$$

Anteil aus Kreisbogen:

$$M_0 := r \left( 2 - \sin(\phi) + \sin\left(\frac{\pi}{12}\right) \right) F$$

$$M_1 := r \left( 2 - \sin(\phi) + \sin\left(\frac{\pi}{12}\right) \right)$$

$$\int_{\frac{\pi}{12}}^{\frac{23\pi}{12}} \frac{M_0 M_1}{EI} d\phi r = \frac{1}{12} \frac{r^3 F \left( 88 \sin\left(\frac{\pi}{12}\right) \pi + 99 \pi + 12 \cos\left(\frac{\pi}{12}\right) \sin\left(\frac{\pi}{12}\right) + 22 \sin\left(\frac{\pi}{12}\right)^2 \pi \right)}{EI}$$

$$\delta_2 := \frac{1}{12} \frac{r^3 F \left( 88 \sin\left(\frac{\pi}{12}\right) \pi + 99 \pi + 12 \cos\left(\frac{\pi}{12}\right) \sin\left(\frac{\pi}{12}\right) + 22 \sin\left(\frac{\pi}{12}\right)^2 \pi \right)}{EI}$$

Summe der beiden Anteile:

$$summe := \frac{8 r^3 F}{3 EI} + \frac{1}{12} \frac{r^3 F \left( 88 \sin\left(\frac{\pi}{12}\right) \pi + 99 \pi + 12 \cos\left(\frac{\pi}{12}\right) \sin\left(\frac{\pi}{12}\right) + 22 \sin\left(\frac{\pi}{12}\right)^2 \pi \right)}{EI}$$

$$Summe = \frac{35.18338795 r^3 F}{EI}$$