

Hypocykloida – skrátená

$R > r > c > 0$

$$x = (R-r) \cos \frac{rt}{R} + c \cos \frac{(R-r)t}{R}, \quad y = (R-r) \sin \frac{rt}{R} - c \sin \frac{(R-r)t}{R}, \quad t \in R.$$

$$x = (R-r) \cos \varphi + c \cos \frac{(R-r)\varphi}{r}, \quad y = (R-r) \sin \varphi - c \sin \frac{(R-r)\varphi}{r}, \quad \varphi \in R.$$

$$\begin{aligned} x &= (\sqrt{5}-1)r \cos \frac{t}{\sqrt{5}} + \frac{3r}{4} \cos \frac{(\sqrt{5}-1)t}{\sqrt{5}} \\ y &= (\sqrt{5}-1)r \sin \frac{t}{\sqrt{5}} - \frac{3r}{4} \sin \frac{(\sqrt{5}-1)t}{\sqrt{5}} \\ t \in &\langle 0; 13.8636\pi \rangle \end{aligned}$$

$$\begin{aligned} x &= (\sqrt{5}-1)r \cos \varphi + \frac{3r}{4} \cos (\sqrt{5}-1)\varphi \\ y &= (\sqrt{5}-1)r \sin \varphi - \frac{3r}{4} \sin (\sqrt{5}-1)\varphi \\ \varphi \in &\langle 0; 6.2\pi \rangle \end{aligned}$$

$$R = \sqrt{5}r, \quad c = \frac{3r}{4}$$