

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

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

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

$$R = \sqrt{5}r, c = 0$$

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