

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

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

$$x = \frac{r}{8} \cos \frac{8t}{9} + 2r \cos \frac{t}{9}, y = \frac{r}{8} \sin \frac{8t}{9} - 2r \sin \frac{t}{9}$$

$$t \in \langle 0; 18\pi \rangle$$

$$x = \frac{r}{8} \cos \varphi + 2r \cos \frac{\varphi}{8}, y = \frac{r}{8} \sin \varphi - 2r \sin \frac{\varphi}{8}$$

$$\varphi \in \langle 0; 16\pi \rangle$$

$$R = \frac{9r}{8}, c = 2r$$