

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

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

$$x = \frac{5r}{4} \cos \frac{4t}{9} + \frac{3r}{2} \cos \frac{5t}{9}, y = \frac{5r}{4} \sin \frac{4t}{9} - \frac{3r}{2} \sin \frac{5t}{9}$$

$$t \in (0; 18\pi)$$

$$x = \frac{5r}{4} \cos \varphi + \frac{3r}{2} \cos \frac{5\varphi}{4}, y = \frac{5r}{4} \sin \varphi - \frac{3r}{2} \sin \frac{5\varphi}{4}$$

$$\varphi \in (0; 8\pi)$$

$$R = \frac{9r}{4}, c = \frac{3r}{2}$$