

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

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

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

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

$$x = -\frac{5r}{9} \cos \varphi, y = -\frac{5r}{9} \sin \varphi$$

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

$$R = \frac{4r}{9}, c = 0$$