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

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

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

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

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

$\varphi \in \langle 0; 8\pi \rangle$

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