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

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

$x = 3r\cos \frac{t}{2},\ y = 3r\sin \frac{t}{2}$
$t \in \langle 0\,;\, 4\pi \rangle$

$R = 2r,\ c = 0$

$x = 3r\cos \varphi,\ y = 3r\sin \varphi$
$\varphi \in \langle 0\,;\, 2\pi \rangle$