$$t = \pi \mapsto (-1,0)$$

$$t = 3\pi \mapsto \left(\frac{-1}{9},0\right)$$

$$t = 2\pi \mapsto \left(\frac{1}{4},0\right)$$

$$t = 4\pi \mapsto \left(\frac{1}{16},0\right)$$

$$t = \frac{3\pi}{2} \mapsto \left(0,\frac{4}{9}\right)$$