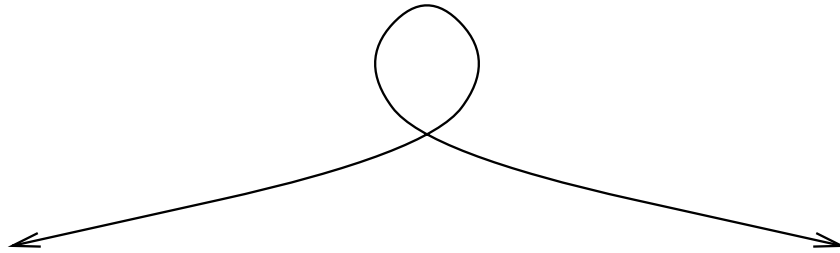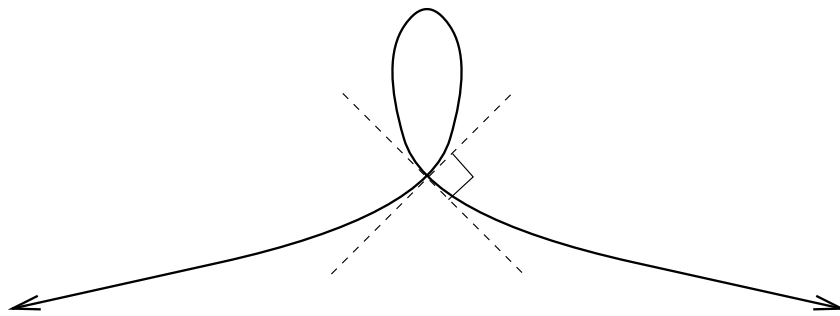**Problem statement** If A is a positive number, the parametric curve $\begin{cases} x = t^3 - t \\ y = \dfrac{A}{1+t^2} \end{cases}$ looks like:

For one value of A, the "self-intersection" of the curve is perpendicular. The picture looks like:

Find that value of A.