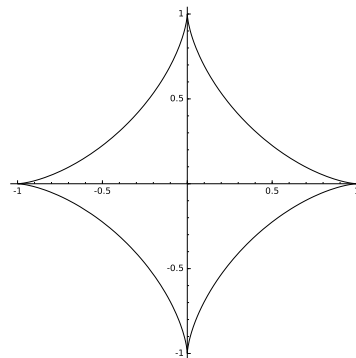


Group members (2 to 4): _____

The curve shown at right, defined by the implicit equation $x^{2/3} + y^{2/3} = 1$, is called an astroid.

- (1) Set up, but DO NOT evaluate, the area of the interior of the astroid as a double integral.



FIG

- (2) Compute the area using Green's theorem

$$\oint_C \vec{F} \cdot d\vec{r} = \iint_R \left(\frac{\partial Q}{\partial x} - \frac{\partial P}{\partial y} \right) dA,$$

where $F = (P, Q)$. You will need to parameterize the astroid: consider modifying the parameterization of the circle $(\cos(t), \sin(t))$.