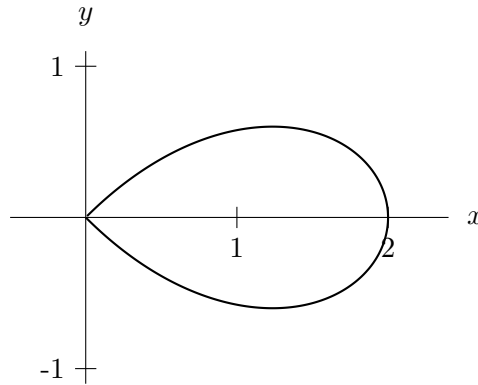


11. [6 points] Jane is trying to make a spaceship in the shape of the region enclosed by the polar curve

$$r = \frac{2 \cos(2\theta)}{\cos \theta}$$

where r is measured in meters and θ is measured in radians. The region is graphed below.



- a. [4 points] Find values of θ that trace out the boundary of the region exactly once.
- b. [2 points] Write an expression involving integrals that give the area of the region. Do not evaluate your integral.