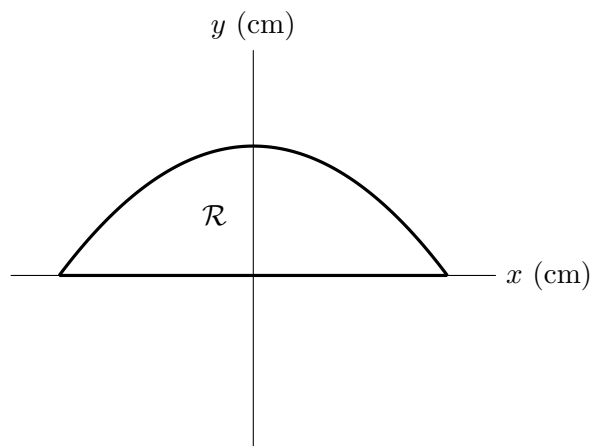


8. [12 points] Consider the region \mathcal{R} bounded by the curve $x^2 + 3y = 4$ and the x -axis.



- a. [4 points] Write an expression involving one or more integrals that gives the perimeter, in cm, of \mathcal{R} . You do not need to evaluate the integral.

Answer: _____

- b. [4 points] Write an expression involving one or more integrals that gives the volume, in cm^3 , of the solid formed by rotating \mathcal{R} about the line $x = -4$.

Answer: _____

- c. [4 points] Write, but do not evaluate, an expression involving one or more integrals that gives the mass, in grams, of a thin plate in the shape of the region \mathcal{R} that has mass density given by $\delta(x) = x + 2 \text{ g/cm}^2$.

Answer: _____