

Problem statement The parametric curve $\begin{cases} x = \sqrt{3} \sin t + \frac{1}{2} \cos t \\ y = -\sin t + \frac{\sqrt{3}}{2} \cos t \end{cases}$ is a tilted ellipse whose graph is shown to the right. What are the dimensions and location of the box containing the ellipse?

Note The sides of the box are vertical and horizontal and also are tangent to the ellipse.

