9-9.2-13

AI24BTECH11016 - Jakkula Adishesh Balaji

Intersection Of Conics(Chords)

Question:

9.2.13 Find the area of the region bounded by the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$

Solution: The area under the curve is given by

Parameter	Description
V	$\begin{pmatrix} 9 & 0 \\ 0 & 16 \end{pmatrix}$
u	0
f	-144

TABLE .1
Parameters Used

$$A = 4\int_0^4 b\sqrt{1-\frac{x^2}{a^2}}\,dx \tag{.1}$$

$$\implies = 4\int_0^4 3\sqrt{1-\frac{x^2}{16}}\,dx \tag{.2}$$

$$A = 12\pi \tag{.3}$$