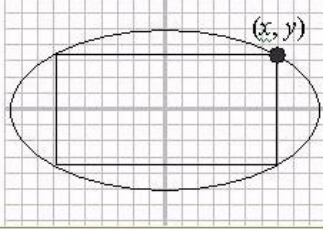


ELİPS İÇİNE ÇİZİLEBİLECEK ALANI EN BÜYÜK DİKDÖRTGEN



$$\begin{aligned} \frac{x^2}{a^2} + \frac{y^2}{b^2} &= 1 \\ \frac{y^2}{b^2} &= 1 - \frac{x^2}{a^2} \\ y^2 &= b^2 \left(1 - \frac{x^2}{a^2} \right) \\ y &= \sqrt{b^2 \left(1 - \frac{x^2}{a^2} \right)} \\ y &= b \sqrt{1 - \frac{x^2}{a^2}} \end{aligned}$$

$$\begin{aligned} A_x &= 2x \cdot 2y \\ A_x &= 2x \cdot 2b \sqrt{1 - \frac{x^2}{a^2}} \\ &= 2x \cdot 2b \sqrt{\frac{a^2 - x^2}{a^2}} \\ &= 2x \cdot 2b \frac{\sqrt{a^2 - x^2}}{a} \\ &= \frac{2x \cdot 2b \sqrt{a^2 - x^2}}{1} \cdot \frac{1}{a} \\ &= \frac{4xb}{a} \sqrt{a^2 - x^2} \\ &= \frac{4b}{a} x \sqrt{a^2 - x^2} \end{aligned}$$

$$\begin{aligned} A_x &= \frac{4b}{a} x \sqrt{a^2 - x^2} \\ A_x &= \frac{4b}{a} x \cdot \frac{1}{2} (a^2 - x^2)^{-\frac{1}{2}} (-2x) + \frac{4b}{a} (a^2 - x^2)^{\frac{1}{2}} \\ &= -\frac{4b}{a} x^2 \cdot \frac{1}{2} (a^2 - x^2)^{-\frac{1}{2}} + \frac{4b}{a} (a^2 - x^2)^{\frac{1}{2}} \end{aligned}$$

$$\begin{aligned} 0 &= -\frac{4b}{a} x^2 \cdot \frac{1}{2} (a^2 - x^2)^{-\frac{1}{2}} + \frac{4b}{a} (a^2 - x^2)^{\frac{1}{2}} \\ 0 &= -\frac{4b}{a} x^2 + \frac{4b}{a} (a^2 - x^2) \end{aligned}$$

$$\begin{aligned} 0 &= -\frac{4b}{a} x^2 + \frac{4b}{a} (a^2 - x^2) \\ 0 &= -\frac{4b}{a} x^2 + 4ab - \frac{4b}{a} x^2 \\ 0 &= -\frac{8b}{a} x^2 + 4ab \\ -4ab &= -\frac{8b}{a} x^2 \end{aligned}$$

$$\begin{aligned} \frac{a^2}{2} &= x^2 \\ \frac{a}{\sqrt{2}} &= x \end{aligned}$$

$$\begin{aligned} A_x &= \frac{4b}{a} x \sqrt{a^2 - x^2} \\ &= \frac{4b}{a} \cdot \frac{a}{\sqrt{2}} \sqrt{a^2 - \frac{a^2}{2}} \\ &= \frac{4b}{\sqrt{2}} \cdot \sqrt{\frac{a^2}{2}} \\ &= \frac{4b}{\sqrt{2}} \cdot \frac{a}{\sqrt{2}} = \frac{4ab}{2} = 2ab \end{aligned}$$

A.E