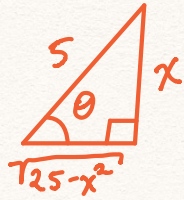


$$\int_0^3 \frac{x}{\sqrt{25-x^2}} dx$$

$$\left. \begin{aligned} x &= 5 \sin \theta \\ dx &= 5 \cos \theta d\theta \end{aligned} \right\}$$

$$\begin{aligned} \int \frac{x}{\sqrt{25-x^2}} dx &= \int \frac{5 \sin \theta}{5 \cos \theta} 5 \cos \theta d\theta \\ &= 5 \int \sin \theta d\theta \end{aligned}$$



$$= -5 \cos \theta + C$$

$$= -5 \left(\frac{\sqrt{25-x^2}}{5} \right) + C$$

Therefore:

$$\int_0^3 \frac{x}{\sqrt{25-x^2}} dx = -5 \left(\frac{\sqrt{25-x^2}}{5} \right) \Big|_0^3$$

$$= - \left(\sqrt{25-(3)^2} - \sqrt{25-(0)^2} \right)$$

$$= - (4 - 5)$$

$$= 1$$