

$$10. \int_0^2 \frac{dx}{\sqrt{9-x^2}}$$

$$= \int_0^2 \frac{dx}{\sqrt{(3)^2 - (x)^2}}$$

$$a=3 \quad u=x \quad du=dx$$

$$= \int_{x=0}^{x=2} \frac{1}{\sqrt{a^2-u^2}} du$$

$$= \left[\arcsin \frac{u}{a} \right]_{x=0}^{x=2}$$

$$= \left[\arcsin \frac{x}{3} \right]_{x=0}^{x=2}$$

$$= \arcsin \frac{2}{3} - \arcsin \frac{0}{3}$$

$$= \arcsin \frac{2}{3} - \arcsin 0$$

$$= \arcsin \frac{2}{3} - 0$$

$$= \boxed{\arcsin \frac{2}{3}}$$

$$\begin{aligned} \rho &= \arcsin 0 \\ \sin \rho &= \sin(\arcsin 0) \\ \sin \rho &= 0 \end{aligned}$$

