

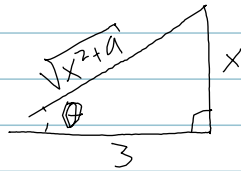
$$(6.3.8) \quad I = \int \frac{dx}{\sqrt{9+x^2}}$$

$$x = 3 \tan \theta \quad \left(\theta \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \right)$$

$$dx = 3 \sec^2 \theta d\theta, \quad \sec \theta = \sqrt{1 + \tan^2 \theta}$$

$$I = \int \frac{3 \sec^2 \theta d\theta}{\sqrt{9 + 9 \tan^2 \theta}} = \int \sec \theta d\theta = \ln |\sec \theta + \tan \theta| + C$$

$$I = \ln \left| \frac{\sqrt{x^2+9}}{3} + \frac{x}{3} \right| + C$$



$$\sec \theta = \frac{\sqrt{x^2+9}}{3}$$

$$\tan \theta = \frac{x}{3}$$