

$$\int \frac{dx}{\sqrt{16x^2 - 9}} = \int \frac{dx}{\left(\frac{3}{4} \sec u\right) \cdot \left(\sqrt{16 \cdot \left(\frac{3}{4} \sec u\right)^2 - 9}\right)} \quad \left| \begin{array}{l} \tan^2 \theta + 1 = \sec^2 \theta \\ x = a \sec \theta \end{array} \right|$$

$$\int \frac{\frac{3}{4} \cdot \sec u \cdot \tan u}{\frac{9}{16} \sec^2 u \cdot \left(\sqrt{16 \cdot \left(\frac{3}{4} \sec u\right)^2 - 9}\right)} du$$

$$\int \frac{\frac{3}{4} \cdot \tan u}{\frac{9}{16} \cdot \sec u \cdot \sqrt{16 \cdot \left(\frac{3}{4} \sec u\right)^2 - 9}} du$$

$$\sqrt{16x^2 - 9} \rightarrow \frac{\sqrt{a}}{\sqrt{b}} \sec u$$

$$\text{Para } \sqrt{16x^2 - 9} \rightarrow x = \frac{3}{4} \sec u$$

$$dx = \frac{3}{4} \sec u \cdot \tan u$$

$$\rightarrow \sqrt{16 \cdot \frac{9}{16} \sec^2 u - 9}$$

$$\sqrt{9 \sec^2 u - 9}$$

$$\sqrt{9(\sec^2 u - 1)} \quad \text{se } \tan^2 \theta + 1 = \sec^2 \theta$$

$$\sqrt{9 \cdot \tan^2 \theta} \quad \sec^2 \theta - 1 = \tan^2 \theta$$

$$\frac{\int \frac{3}{4} \cdot \tan u \cdot du}{\frac{9}{16} \cdot \sec u \cdot 3 \cdot \sqrt{9 \tan^2 \theta}} = \frac{\int \frac{3}{4} \cdot \tan u \cdot du}{\frac{9}{16} \cdot \sec u \cdot 3 \cdot \tan u} =$$

$$\frac{\int \frac{3}{4} \cdot \tan u \cdot du}{\frac{27}{16} \cdot \sec u \cdot \tan u} = \int \frac{\frac{3}{4} du}{\frac{27}{16} \sec u} = \int \frac{4}{9} \cdot \frac{du}{\sec u}$$

$$\frac{3 \cdot 16}{4 \cdot 27} = \frac{48}{108}$$

$$\frac{24}{54} = \frac{12}{27} = \frac{4}{9}$$

SOH CAH TOA

$$S = \frac{O}{H}$$



$$\frac{4}{3} \int \frac{du}{\sec u} = \frac{4}{3} \int \frac{du}{\frac{1}{\cos u}} = \frac{4}{3} \int \frac{1}{1} \cdot \frac{\cos u}{1} du =$$

$$\frac{4}{3} \int \cos u \cdot du = \frac{4}{3} \cdot \sin u + C$$

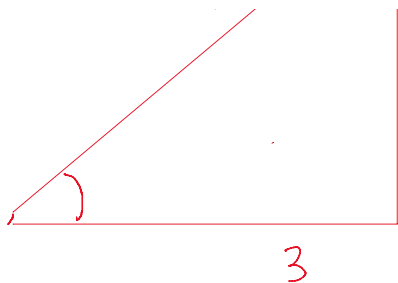
$$\sqrt{4x^2 - 9} \quad \sin u = \frac{\sqrt{4x^2 - 9}}{4}$$

3

$$s = \frac{v}{4}$$

$$C = \frac{A}{H}$$

$$t = \frac{0}{A}$$



$$\sqrt{4x^2 - 9}$$

$$\sec u = \frac{\sqrt{4x^2 - 9}}{3}$$

$$\frac{4\sqrt{4x^2 - 9}}{12x} + C$$

$$x = \frac{3}{4} \sec u \quad \text{then} \quad \sec u = \frac{4x}{3} \quad \text{and} \quad \sec u = \frac{1}{\cos u}$$

$$4x^2 = 9 + y^2$$

$$4x^2 - 9 = y^2$$

$$\sqrt{4x^2 - 9} = y$$

$$\frac{1}{\cos u} = \frac{4x}{3} \Rightarrow \frac{3}{4x} = \cos u$$

