

$$1) \frac{dx}{x^2 \sqrt{x^2 - 16}}$$

$$\frac{4 \sec \theta \tan \theta d\theta}{16 \sec^2 \theta \sqrt{16 \sec^2 \theta - 16}}$$

$$\frac{\cancel{4} \sec \theta \tan \theta d\theta}{16 \sec^2 \theta \cancel{\tan \theta} \cdot \cancel{4}}$$

$$= \frac{d\theta}{16 \sec \theta}$$

$$\frac{1}{16} \int \cos \theta d\theta = \frac{1}{16} \sin \theta + C$$

$$\text{let } x = 4 \sec \theta \\ dx = 4 \sec \theta \tan \theta d\theta$$

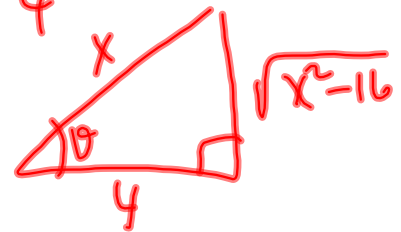
$$\begin{aligned} & \sqrt{16 \sec^2 \theta - 16} \\ & \sqrt{16 (\sec^2 \theta - 1)} \\ & \sqrt{16} \sqrt{\sec^2 \theta - 1} \\ & 4 \sqrt{\tan^2 \theta} \\ & 4 \tan \theta \end{aligned}$$

$$\frac{1}{16} \sin \theta + C$$

$$\frac{1}{16} \frac{\sqrt{x^2-16}}{x} + C$$

$$x = 4 \sec \theta$$

$$\sec \theta = \frac{x}{4}$$



$$2) \frac{11x+17}{(2x-1)(x+4)} = \frac{A}{2x-1} + \frac{B}{x+4}$$

$$11x+17 = A(x+4) + B(2x-1)$$

$$= \underline{Ax} + \underline{2Bx} + \underline{4A} - \underline{B}$$

$$= x(A+2B) + 4A - B$$

$$\begin{array}{r} 11 = A + 2B \\ + (17 = 4A - B) \cdot 2 \\ \hline 45 = 9A \quad 11 = 5 + 2B \\ A = 5 \quad B = 3 \end{array}$$

$$\int \frac{5}{2x-1} + \frac{3}{x+4} dx$$

$$\frac{5}{2} \ln|2x-1| + 3 \ln|x+4| + C$$