

$$3. \int \frac{\sin^5 x}{\sqrt[3]{\cos x}} dx$$

$$\int \frac{\sin^4 x}{(\cos x)^{1/3}} \cdot \underline{\sin x} dx$$

$$\int \frac{\sin^2 x \sin^2 x}{(\cos x)^{1/3}} \cdot \underline{\sin x} dx$$

$$\int \frac{(1-\cos^2 x)(1-\cos^2 x)}{(\cos x)^{1/3}} \cdot \underline{\sin x} dx$$

$$\int \frac{1-\cos^2 x-\cos^2 x+\cos^4 x}{(\cos x)^{1/3}} \underline{\sin x} dx$$

$$\int \frac{1-2\cos^2 x+\cos^4 x}{(\cos x)^{1/3}} \underline{\sin x} dx$$

$$\int \left(\frac{1}{(\cos x)^{1/3}} - \frac{2(\cos x)^2}{(\cos x)^{1/3}} + \frac{(\cos x)^4}{(\cos x)^{1/3}} \right) \underline{\sin x} dx$$

$$\int \left((\cos x)^{-1/3} - 2(\cos x)^{5/3} + (\cos x)^{11/3} \right) \underline{\sin x} dx$$

$$u = \cos x \quad du = -\sin x dx$$

$$-\int \left((\cos x)^{-1/3} - 2(\cos x)^{5/3} + (\cos x)^{11/3} \right) (-\underline{\sin x}) dx$$

$$-\int \left(u^{-1/3} - 2u^{5/3} + u^{11/3} \right) du$$

$$-\left[\frac{u^{-1/3+1}}{-1/3+1} - \frac{2u^{5/3+1}}{5/3+1} + \frac{u^{11/3+1}}{11/3+1} \right] + C$$

$$-\left[\frac{u^{2/3}}{2/3} - \frac{2u^{8/3}}{8/3} + \frac{u^{14/3}}{14/3} \right] + C$$

$$\boxed{-\frac{3}{2}(\cos x)^{2/3} + \frac{3}{4}(\cos x)^{8/3} + \frac{3}{14}(\cos x)^{14/3} + C}$$