

$$\begin{aligned} \text{v8} \quad \int \frac{\sin^3 x \, dx}{\cos^2 x} &= \int \frac{(1 - \cos^2 x) \sin x \, dx}{\cos^2 x} = \left[\begin{array}{l} u = \cos x \\ du = -\sin x \, dx \end{array} \right] = \\ &= - \int \frac{(1 - u^2) \, du}{u^2} = \int \frac{(u^2 - 1) \, du}{u^2} = \int du - \int \frac{du}{u^2} = \end{aligned}$$

$$= \cos x + \frac{1}{\cos x} + C.$$

Проверка:

$$\begin{aligned} \left(\cos x + \frac{1}{\cos x} \right)' &= -\sin x + \frac{\sin x}{\cos^2 x} = \frac{-\sin x \cos^2 x + \sin x}{\cos^2 x} = \frac{\sin x (1 - \cos^2 x)}{\cos^2 x} = \\ &= \frac{\sin^3 x}{\cos^2 x} \end{aligned}$$

Ответ: $\cos x + \frac{1}{\cos x} + C.$