

$$\int \sin x^2 dx = \begin{cases} x^2 = u \\ 2x dx = du \end{cases}$$

$$\int \frac{2x + \cos x}{\sqrt{x^2 + \sin x}} dx = \int \frac{\sqrt{x^2 + \sin x}}{2x + \cos x} dx = \int \frac{2\sqrt{x^2 + \sin x}}{2x + \cos x} dx = \int \frac{2\sqrt{x^2 + \sin x}}{2x + \cos x} dx = 2\sqrt{x^2 + \sin x} + C$$