

Primitive uzuale 2

1. $\int (2 \cos x - \operatorname{ctgx}) dx, x \in (0, \pi).$

$$\int (2 \cos x - \operatorname{ctgx}) dx = 2 \int \cos x dx - \int \operatorname{ctgx} dx = 2 \sin x + \ln(\sin x) + \mathcal{C}.$$

2. $\int \left(\frac{1}{x^2 + 2} - \frac{1}{\sin^2 x} \right) dx, x \in (0, \pi).$

$$\int \left(\frac{1}{x^2 + 2} - \frac{1}{\sin^2 x} \right) dx = \int \frac{1}{x^2 + 2} dx + \int -\frac{1}{\sin^2 x} dx = \frac{1}{\sqrt{2}} \operatorname{arctg} \frac{x}{\sqrt{2}} + \operatorname{ctgx} + \mathcal{C}.$$

3. $\int \cos^2 x dx, x \in \mathbb{R}.$

$$\int \cos^2 x dx = \int \frac{1 + \cos 2x}{2} dx = \frac{1}{2} \left(\int 1 dx + \int \cos 2x dx \right) = \frac{1}{2} \left(x + \frac{1}{2} \sin 2x \right) + \mathcal{C}.$$