

Silly Bullshit

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Denote: $I = \int \frac{\cos x}{\sin x} dx$ and apply integration by parts:

$$u' = \cos x, v = \frac{1}{\sin x} \rightarrow u = \sin x, v' = -\frac{\cos x}{\sin^2 x}$$

.

We get:

$$I = \sin x \cdot \frac{1}{\sin x} + \int \sin x \cdot \frac{\cos x}{\sin^2 x} dx =$$

$$1 + \int \frac{\cos x}{\sin x} dx = 1 + I$$

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To summarize: $I = 1 + I$ which means that $1 = 0$.