Common Calculus Mistakes

Indefinite Integral

The Goal

Find

$$\int \sin(x)\,dx$$

The Mistake

Find the mistake:

$$\int \sin(x)\,dx = \cos(x) + C$$

Need a hint? Look carefully at the red part:

$$\int \sin(x)\,dx = \cos(x) + C$$

The Correction

$$\int \sin(x)\,dx = -\cos(x) + C$$

An Explanation

The integral of the sine function is not cosine, but rather is negative cosine, since the *derivative* of cosine is *negative* sine.