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**Integral of radical trigonometric functions revisited.**

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Summary: This article revisits an integral of radical trigonometric functions. It presents several methods of integration where the integrand takes the form  $\sqrt{1 \pm \sin x}$  or  $\sqrt{1 \pm \cos x}$ . The integral has applications in calculus where it appears as the length of cardioid represented in polar coordinates.

*Classification:* I50

*Keywords:* integral calculus; techniques of integration; radical trigonometric functions; integral of radical sine function; integral of radical sine function; rationalizing numerator; combining identities; twice trigonometric substitutions; variable shift; cardioids; length

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