

Section 7.3 Integrating Trigonometric Functions

Table for Trigonometric Integration		
$\int \sin^m(x) \cos^n(x) dx$	Procedure	Relevant Identities
1. n odd	Split off a factor of $\cos(x)$ Apply the relevant identity Make the substitution $u = \sin(x)$	$\cos^2(x) = 1 - \sin^2(x)$
2. m odd	Split off a factor of $\sin(x)$ Apply the relevant identity Make the substitution $u = \cos(x)$	$\sin^2(x) = 1 - \cos^2(x)$
3. m even n even	Use the relevant identities to reduce the powers of $\sin(x)$ and $\cos(x)$	$\sin^2(x) = 1/2(1 - \cos(2x))$ $\cos^2(x) = 1/2(1 + \cos(2x))$

Reduction Formulas: To integrate $\sin^n(x)$ or $\cos^n(x)$, we use the following reduction formulas:

$$\int \sin^n(x) dx = -\frac{1}{n} \sin^{n-1}(x) \cos(x) + \frac{n-1}{n} \int \sin^{n-2}(x) dx$$

$$\int \cos^n(x) dx = \frac{1}{n} \cos^{n-1}(x) \sin(x) + \frac{n-1}{n} \int \cos^{n-2}(x) dx$$