**Trigonometric Integrals**

**Guidelines for Evaluating Integrals Involving Sine and Cosine**

**1.** If the power of the sine is odd and positive, save one sine factor and convert the remaining factors to cosine.

 

**2.** If the power of the cosine is odd and positive, save one cosine factor and convert the remaining factors to sine.



**3.** If the powers of *both* the sine and cosine are even and nonnegative, make repeated use of the power reducing identities:



EXAMPLE Power of Sine is odd and positive:

 Evaluate 



 

**EXAMPLE Power of Cosine is Odd and Positive**

Evaluate

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**EXAMPLE Power is Cosine is Even and Nonnegative**

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**Guidelines for Evaluating Integrals Involving Tangent and Secant**

**1.** If the power of the secant is even and positive, save a secant-squared factor and convert the remaining factors to tangents.

 

**2.** If the power of the tangent is odd and positive, save a secant-tangent factor and convert the remaining factors to secants.



**3.** If there are no secant factors and the power of the tangent is even and positive, convert a tangent-squared factor to a secant-squared factor, expanding and repeating as necessary.



4. If the integral is of the form , where m is odd and positive, use integration by parts.

EXAMPLE of Integration by Parts with Secant

 

 

 

**EXAMPLE Power of Tangent is Odd and Positive**

Evaluate



**EXAMPLE Power of Secant is Even and Positive**

**Evaluate **

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