Trigonometric Integrals

Calculus II
Section 8.3

$\int \sin^m x\,dx$ or $\int \cos^n x\,dx$

- **m or n even**
  - **rewrite as $\int (\_\_^2)^{m/2}\,dx$ and use a half-angle identity**
- **m or n odd**
  - **pull off one and rewrite as $\int \sin^{m-1} x \sin x\,dx$ then use a pythagorean identity and u-substitution**

$\int \sin^m x \cos^n x\,dx$

- **Use the odd exponent to rewrite if you have one. If m & n are both even then use a half-angle identity to reduce powers.**

$\int \tan^m x \sec^n x\,dx$

- **If m is odd pull off *(tanx secx)* and rewrite the remaining *($\tan^{m-1} x$)* in terms of *($\sec^2 x$)* using ($\sec^2 x - 1 = \tan^2 x$) and use a u-sub. with (u = sec x).**
- **If n is even pull of ($\sec^2 x$) and rewrite the remaining ($\sec^{n-2} x$) in terms of ($\tan^2 x$) then use u-substitution with (u = tan x).**
- **If m is even and n is odd there is no set procedure. Do what you can!**

Other Combinations of Trig Functions

- Change to sines and cosines
- Use trig identities
- Rewrite algebraically
- Pray!