Math 152 Calculus and Analytic Geometry II

Sec. 7.2 Trigonometric Integrals

This section has suggestions for how to solve integrals involving certain combinations of trig functions.

For example.

$$\int Cos^3(x)dx$$

For Example:

$$\int Cos^3(x)Sin^5(x)dx$$

For Example:

$$\int Cos^3(x)Sin^5(x)dx$$

What about this?

$$\int Sin^2(x)\,dx$$

General Strategy:

$$\int Sin^{(odd)}(x)Cos^{(anything)}(x)dx$$

$$\int Sin^{(anything)}(x)Cos^{(odd)}(x)dx$$

What about

$$\int Tan^6(x)Sec^4(x)dx$$

Another one...

$$\int Tan^7(x)Sec^4(x)dx$$

General Strategy:

$$\int Tan^{(anything)}(x)Sec^{(even)}(x)dx$$

$$\int Tan^{(odd)}(x)Sec^{(anything)}(x)dx$$

Otherwise, harder, maybe try some identities...

$$\int Tan(x)dx = \ln|Sec(x)| \qquad \int Sec(x)dx = \ln|Sec(x) + Tan(x)|$$

HW Problems:

15. $\int \sin^3(x)\sqrt{\cos(x)}dx$

31. $\int \dfrac{\tan^5(x)}{\cos^4(x)}dx$

59. Rotate the given region about the x-axis

$$y = \sin(x)$$

$$x = \frac{\pi}{2}$$

$$x = \pi$$

$$y = 0$$