

Calculus BC

Section 8.3 - Trigonometric Integrals

I. Powers of sin and cos - odd

1. $\int \sin x dx$

=

2. $\int \sin^3 x dx$

-separate to $\sin^{\text{even \#}} \cdot \sin^1$

-trig identity

3. $\int \sin^5 x \cos^2 x dx$

II. Powers of sin and cos - Even

(use only when there is no odd power)

Identities:

$$\cos^2 x = \frac{1}{2}(1 + \cos 2x)$$

$$\sin^2 x = \frac{1}{2}(1 - \cos 2x)$$

4. $\int \cos^2 x dx$

=

=

5. $\int \sin^4 x dx$

III. Powers of tan and sec

recall: $\int \sec^2 x dx =$

$$\int \sec x dx =$$

$$\int \tan x dx =$$

$$\int \sec x \tan x dx =$$

$$\tan^2 x =$$

$$\sec^2 x =$$

$$\left. \begin{array}{l} \text{identities from} \\ \sin^2 x + \cos^2 x = 1 \end{array} \right\}$$

6. $\int \tan^3 x dx$

$$7. \int \sec^3 x dx =$$

$$8. \int \tan^2 x dx =$$

$$9. \int \tan^4 x dx =$$