Math 1432

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Office Hours:

Mondays 1-2pm,
Fridays noon-1pm
(also available by appointment)

Class webpage:
http://www.math.uh.edu/~bekki/Math1432.html

More examples with trig powers:

$$\int \frac{\sec x}{\tan^2 x} \, dx$$

$$\int \sin^4 x \cos^5 x \, dx$$

$$\int \tan^3 x \, dx$$

$$\int \sec^5 x \tan x \, dx$$

Integrals involving Sine-Cosine Products with Different Angles

If you are given one of these where $m \neq n$

$$\int \sin(mx)\cos(nx)dx$$

$$\int \sin(mx)\sin(nx)dx$$

$$\int \cos(mx)\cos(nx)dx$$

Use these formulas:

$$\sin A \cos B = \frac{1}{2}[\sin(A-B) + \sin(A+B)]$$

$$\sin A \sin B = \frac{1}{2}[\cos(A-B) - \cos(A+B)]$$

$$\cos A \cos B = \frac{1}{2}[\cos(A-B) + \cos(A+B)]$$

$$\int \cos(2x)\sin(3x)\,dx$$

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1. Rewrite $\sin(5x)\sin(3x)$

2. $\displaystyle\int \sin(5x)\sin(3x)\,dx =$

1) Given an integral involving $\sqrt{a^2 - x^2}$ use $x = a\sin\theta$.

2) Given an integral involving $\sqrt{a^2 + x^2}$ use $x = a\tan\theta$.

3) Given an integral involving $\sqrt{x^2 - a^2}$ use $x = a\sec\theta$.

For the following, what substitution should we use?

$$\sqrt{9 - x^2}$$

$$\sqrt{16 + x^2}$$

$$\sqrt{x^2 - 4}$$

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3. For $\int \sqrt{x^2 - 1}\, dx$ $x = ?$

4. What substitution should be used to compute $\int \dfrac{1}{\sqrt{x^2 - 9}}\, dx$?

5. What substitution should be used to compute $\int \dfrac{1}{\sqrt{x^2 + 4}}\, dx$?

Examples:

1. $\int \sqrt{9-x^2}\,dx$

2. $\displaystyle\int \frac{x^2}{\sqrt{x^2-1}}\,dx$

3. $\displaystyle\int \frac{x^2}{\sqrt{4+x^2}}\,dx$