

Math 426.2SY

Calculus II

University of New Hampshire

June 27, 2016

Outline

1 Chapter 8, Integration Techniques

Integration Techniques

Example

$$\int (2x + 1) \ln(x) dx$$

Integration Techniques

Example

$$\int e^x \cos(2x) dx$$

Integration Techniques

Example

$$\int x \sin(1 - x) dx$$

Integration Techniques

Example

$$\int \sin^3(x) \cos^4(x) dx$$

Integration Techniques

Example

$$\int \sin^5(2x) \cos^9(2x) dx$$

Integration Techniques

Example

$$\int \sec^6(4x) dx$$

Integration Techniques

Example

$$\int \frac{x dx}{\sqrt{4 + x^2}}$$

Integration Techniques

Example

$$\int \frac{x dx}{x^2 - 3x + 2}$$

Integration Techniques

Example

$$\int \frac{x+1}{x^2(x-1)} dx$$

Integration Techniques

Example

$$\int \frac{3x^2 + 4x + 4}{x^3 + x} dx$$

Integration Techniques

Example

$$\int_1^{\infty} \frac{\ln(x)}{x} dx$$

Integration Techniques

Example

$$\int_1^2 \frac{x}{\sqrt{4-x^2}} dx$$

Integration Techniques

Example

In the next exercises, use the Direct Comparison Test, or the Limit Comparison Test to test the integrals for convergence.

Integration Techniques

Example

$$\int_2^{\infty} \frac{x^2}{x^3 - 3x + 1} dx$$

Integration Techniques

Example

$$\int_{\pi}^{\infty} \frac{2 + \cos(x)}{x} dx$$

Integration Techniques

Example

$$\int_1^{\infty} \frac{e^x}{x} dx$$