REVIEW 5 – Transcendental Functions

Summary of Topics for Sections 5.1 through 5.7:

Logarithmic Functions: properties, derivatives
Exponential Functions: properties, derivative, integrals
Integrating with the natural logarithm
Process of Logarithmic Differentiation
Process for differentiating $(f(x))^{g(x)}$
Inverse functions: properties, derivative property
Using long division and separating fractions to integrate a rational function
Trigonometric functions: integrating
Inverse trigonometric functions: graphs, derivatives
Integrating with inverse trigonometric functions
Applications (area, max/min, inflection, linear approximation)

Suggested Review Problems from the Textbook

Pg. 401-402 Review Exercises: 9, 11, 13, 15, 17, 19, 21, 22, 23, 31, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 59, 65, 67, 69, 71, 75, 76, 79, 81, 83, 85, 87, 89, 91

Additional Suggested Review Problems

1. Find: $\int \frac{(\arccos x)^2 dx}{\sqrt{1-x^2}} =$

2. Find: $\int_0^1 \frac{(x+1)dx}{\sqrt{4-x^2}} =$

3. Find: $\int \frac{x^2}{x^6+16} dx =$

Answers

Additional Suggested Review Problems

1. $\frac{-1}{3}(\arccos x)^3 + C$
2. $\frac{\pi}{6} - \sqrt{3} + 2$
3. $\frac{1}{12}\arctan\left(\frac{x^3}{4}\right)$

Pg. 401-402 Review Exercises

22. $\frac{1}{2}$