## Section 7.6: Integration by Tables and Other Integrations Techniques

## A. Integration Using Tables

In order to use the tables properly, you must be able to recognize a give pattern and use substitution. See Appendix C in the back of the text for a complete table of integration.

## **B. Reduction Formulas**

Several of the integrals in the integration tables have the form  $\int f(x)dx = g(x) + \int h(x)dx$  because they reduce a given integral to the sum of a function and a simpler integral.

## C. Rational Functions of Sine and Cosine

For integrals involving rational functions of sine and cosine, the substitution  $u = \frac{\sin x}{1 + \cos x} = \tan \frac{x}{2}$  yields  $\cos x = \frac{1 - u^2}{1 + u^2}$   $\sin x = \frac{2u}{1 + u^2}$   $dx = \frac{2du}{1 + u^2}$ 

Examples: 4, 6, 10, 20, 34, 64, (68)