

# LESSON 1: INTEGRATION OF EXPONENTIAL AND LOGARITHMIC FUNCTIONS

- Objectives:
1. To derive and use  $\int e^x dx$ .
  2. To derive and use  $\int \frac{1}{x} dx$ .

## Examples

1.  $\int e^x dx$
2.  $\int e^{(-2x+1)} dx$
3.  $\int \frac{1}{x} dx$
4.  $\int \frac{1}{x+3} dx$
5.  $\int \frac{x^2 + x + 1}{x^2 + 1} dx$
6.  $\int \frac{2x}{(x+1)^2} dx$
7.  $\int \tan x dx$
8.  $\int \sec x dx$

## Problems

1.  $\int x e^{5x^2} dx$
2.  $\int_e^{e^2} \frac{1}{x \ln^2 x} dx$
3.  $\int \cot x dx$
4.  $\int \csc x dx$