

Properties of Integrals and Basic Integration Rules

Properties of Integrals:

1.) $\int k f(x)dx = k \int f(x)dx$, where k is any number.

2.) $\int -f(x)dx = - \int f(x)dx$

3.) $\int f(x) \pm g(x)dx = \int f(x)dx \pm \int g(x)dx$

****THERE ARE NO PROPERTIES INTEGRATING THE PRODUCT OR QUOTIENT OF TWO FUNCTIONS!**

Basic Integration Rules:

1.) $\int 0 dx = C$

2.) $\int k dx = kx + C$

3.) $\int x^n dx = \frac{x^{n+1}}{n+1} + C$, $n \neq -1$ **[POWER RULE]**

4.) $\int \cos x dx = \sin x + C$

5.) $\int \sin x dx = -\cos x + C$

6.) $\int \sec^2 x dx = \tan x + C$

7.) $\int \sec x \tan x dx = \sec x + C$

8.) $\int \csc^2 x dx = -\cot x + C$

9.) $\int \csc x \cot x dx = -\csc x + C$

10.) $\int e^x dx = e^x + C$

11.) $\int a^x dx = \frac{a^x}{\ln a} + C$

12.) $\int \frac{1}{x} dx = \ln|x| + C$