

6.2 Antidifferentiation by Substitution

Definite Integral $\int_a^b f(x) dx$

Indefinite Integral $\int f(x) dx$

U - Substitution

Opposite of the chain rule
(Used when one function is inside of another)

Ex 1) $\int 3t^2(\cos t^3) dt$

$$\text{Ex 2) } \int (\sin 3x) dx$$

$$\text{Ex 3) } \int (28)(7x - 2)^3 dx$$

$$\text{Ex 4) } \int \sqrt{\cot x} \csc^2 x \, dx$$

$$\text{Ex 5) } \int (x)(\cos 2x^2) \, dx$$

$$\text{Ex 6) } \int \frac{\ln^6 x}{x} dx$$

$$\text{Ex 7) } \int \frac{\sin(2t+1)}{\cos^2(2t+1)} dt$$

$$\text{Ex 8) } \int (\sec^2 x) dx$$