TABLE OF ANTIDIFFERENTIATION FORMULAS

General antiderivatives

1. $\int dx = x + C$
2. $\int af(x)\,dx = a\int f(x)\,dx$
3. $\int x^n dx = \frac{x^{n+1}}{n+1} + C,\ \ n \neq -1$
4. $\int x^n dx = \ln|x| + C,\ \ n = -1$
5. $\int a^n dx = \frac{a^n}{\ln a} + C$
6. $\int e^n dx = e^n + C$

Antidifferentiation formulas of trigonometric functions

7. $\int \sin x\,dx = -\cos x + C$
8. $\int \cos x\,dx = \sin x + C$
9. $\int \sec^2 x\,dx = \tan x + C$
10. $\int \csc^2 x\,dx = -\cot x + C$
11. $\int \sec x \tan x\,dx = \sec x + C$
12. $\int \csc x \cot x\,dx = -\csc x + C$
13. $\int \cot x\,dx = \ln|\sin x| + C$
14. $\int \tan x\,dx = \ln|\sec x| + C$
15. $\int \sec x\,dx = \ln|\sec x + \tan x| + C$
16. $\int \csc x\,dx = \ln|\csc x - \cot x| + C$

Antidifferentiation formulas yielding inverse trigonometric functions

17. $\int \frac{1}{\sqrt{a^2-x^2}}dx = \sin^{-1}\left(\frac{x}{a}\right) + C,\ \ a > 0$
18. $\int \frac{1}{a^2+x^2}dx = \frac{1}{a}\tan^{-1}\left(\frac{x}{a}\right) + C,\ \ a \neq 0$
19. $\int \frac{1}{x\sqrt{x^2-a^2}}dx = \frac{1}{a}\sec^{-1}\left(\frac{x}{a}\right) + C,\ \ a > 0$

Antidifferentiation formulas of hyperbolic functions

20. $\int \sinh x\,dx = \cosh x + C$
21. $\int \cosh x\,dx = \sinh x + C$
22. $\int \operatorname{sech}^2 x\,dx = \tanh x + C$
23. $\int \operatorname{csch}^2 x\,dx = -\coth x + C$
24. $\int \operatorname{sech} x \tanh x\,dx = -\operatorname{sech} x + C$
25. $\int \operatorname{csch} x \coth x\,dx = -\operatorname{csch} x + C$
26. $\int \coth x\,dx = \ln|\sinh x| + C$
27. $\int \tanh x\,dx = \ln(\cosh x) + C$
28. $\int \operatorname{sech} x\,dx = 2\tan^{-1} e^x + C = \tan^{-1}(\sinh x) + C$
29. $\int \operatorname{csch} x\,dx = \ln|\operatorname{csch} x - \coth x| + C$