

Table of Integrals for Exam 3 MTH 252

1. $\int x^n dx = \frac{x^{n+1}}{n+1} + C$
2. $\int \frac{1}{x} dx = \ln|x| + C$
3. $\int e^x dx = e^x + C$
4. $\int a^x dx = \frac{1}{\ln a} a^x + C$
5. $\int \sin x dx = -\cos x + C$
6. $\int \cos x dx = \sin x + C$
7. $\int \sec^2 x dx = \tan x + C$
8. $\int \csc^2 x dx = -\cot x + C$
9. $\int \sec x \tan x dx = \sec x + C$
10. $\int \csc x \cot x dx = -\csc x + C$
11. $\int \tan x dx = \ln|\sec x| + C$
12. $\int \cot x dx = \ln|\sin x| + C$
13. $\int \sec x dx = \ln|\sec x + \tan x| + C$
14. $\int \csc x dx = \ln|\csc x - \cot x| + C$
15. $\int \frac{1}{\sqrt{a^2 - x^2}} dx = \sin^{-1}\left(\frac{x}{a}\right) + C$
16. $\int \frac{1}{a^2 + x^2} dx = \frac{1}{a} \tan^{-1}\left(\frac{x}{a}\right) + C$
17. $\int \frac{1}{x\sqrt{x^2 - a^2}} dx = \frac{1}{a} \sec^{-1}\left(\frac{x}{a}\right) + C$
18. $\int \sin^2 x dx = \frac{1}{2}x - \frac{1}{4}\sin(2x) + C$
19. $\int \cos^2 x dx = \frac{1}{2}x + \frac{1}{4}\sin(2x) + C$
20. $\int \tan^2 x dx = \tan x - x + C$
21. $\int \cot^2 x dx = -\cot x - x + C$
22. $\int \ln x dx = x \ln x - x + C$
23. $\int \sin^{-1} x dx = x \sin^{-1} x + \sqrt{1 - x^2} + C$
24. $\int \cos^{-1} x dx = x \cos^{-1} x - \sqrt{1 - x^2} + C$
25. $\int \tan^{-1} x dx = x \tan^{-1} x - \frac{1}{2} \ln(1 + x^2) + C$
26. $\int \operatorname{sech} x dx = \tan^{-1}|\sinh x| + C$
27. $\int \operatorname{csch} x dx = \ln\left|\tanh \frac{1}{2}x\right| + C$
28. $\int \operatorname{sech}^2 x dx = \tanh x + C$
29. $\int \operatorname{csch}^2 x dx = -\operatorname{coth} x + C$