

Integrals - Substitutions

1. $\int x^3 \sqrt{x^4 + 3} dx = \frac{1}{6}(x^4 + 3)^{3/2} + c$
2. $\int x^2 \cos x^3 dx = \frac{1}{3} \sin x^3 + c$
3. $\int \frac{\sin x}{\cos^2 x} dx = \frac{1}{\cos x} + c$
4. $\int x e^{x^2} dx = \frac{1}{2} e^{x^2} + c$
5. $\int \frac{x}{x^2 + 4} dx = \frac{1}{2} \ln |x^2 + 4| + c$
6. $\int \frac{\ln x}{x} dx = \frac{1}{2} \ln^2 x + c$
7. $\int \frac{x^2}{x^6 + 1} dx = \frac{1}{3} \tan^{-1} x^3 + c$
8. $\int x \sec^2 x^2 dx = \frac{1}{2} \tan x^2 + c$
9. $\int (x + 3)^3 dx = \frac{1}{4} (x + 3)^4 + c$
10. $\int \frac{x + 1}{(x^2 + 2x)^2} dx = -\frac{1}{2x(x + 2)} + c$
11. $\int \sin^2 x \cos x dx = \frac{1}{2} \sin^3 x + c$
12. $\int \sqrt{4x - 1} dx = \frac{1}{6} (4x - 1)^{3/2} + c$
13. $\int \sec^2 x \tan x dx = \frac{1}{2} \tan^2 x + c$
14. $\int x \sqrt{x + 2} dx = \frac{2}{5} (x + 2)^{5/2} - \frac{4}{3} (x + 2)^{3/2} + c$
15. $\int (3x + 2)^9 dx = \frac{1}{30} (3x + 2)^{10} + c$
16. $\int \frac{\cos \sqrt{x}}{\sqrt{x}} dx = 2 \sin \sqrt{x} + c$
17. $\int x(x + 2)^5 dx = \frac{1}{7} (x + 2)^7 - \frac{1}{3} (x + 2)^6 + c$
18. $\int \cos^3 x \sin x dx = -\frac{1}{4} \cos^4 x + c$
19. $\int \tan(3x - 2) dx = -\frac{1}{3} \ln |\cos(3x - 2)| + c$
20. $\int \frac{x}{\sqrt{x^2 + 4}} dx = \sqrt{x^2 + 4} + c$

21. $\int \frac{\sec x \tan x}{1 + \sec^2 x} dx = \tan^{-1} \sec x + c$
22. $\int \frac{1}{(2x+5)^3} dx = -\frac{1}{4(2x+5)^2} + c$
23. $\int e^x \sin(e^x) dx = -\cos(e^x) + c$
24. $\int \sec 2\theta \tan 2\theta d\theta = \frac{1}{2} \sec 2\theta + c$
25. $\int \sqrt{x} \sin(1+x^{3/2}) dx = -\frac{2}{3} \cos(1+x^{3/2}) + c$
26. $\int (1+\tan \theta)^5 \sec^2 \theta d\theta = \frac{1}{6} (1+\tan \theta)^6 + c$
27. $\int \frac{\tan^{-1} x}{1+x^2} dx = \frac{1}{2} (\tan^{-1} x)^2 + c$
28. $\int e^{\cos t} \sin t dt = -e^{\cos t} + c$
29. $\int \frac{\sin(\ln x)}{x} dx = -\cos(\ln x) + c$
30. $\int \frac{e^x}{e^x+1} dx = \ln|e^x+1| + c$
31. $\int \frac{\cos(\pi/x)}{x^2} dx = -\frac{1}{\pi} \sin(\pi/x) + c$
32. $\int \frac{\sin x}{1+\cos^2 x} dx = -\tan^{-1}(\cos x) + c$
33. $\int \sin t \sec^2(\cos t) dt = -\tan(\cos t) + c$
34. $\int \frac{x}{1+x^4} dx = \frac{1}{2} \tan^{-1} x^2 + c$
35. $\int \frac{x^2}{\sqrt{1-x}} dx = -2\sqrt{1-x} + \frac{4}{3}(1-x)^{3/2} - \frac{2}{5}(1-x)^{5/2} + c$
36. $\int_0^7 \sqrt{4+3x} dx = 26$
37. $\int_0^{\sqrt{\pi}} x \cos(x^2) dx = 0$
38. $\int_0^1 x e^{-x^2} dx = \frac{1}{2}(1-e^{-1})$
39. $\int_0^4 \frac{x}{1+2x} dx = 2 - \frac{1}{2} \ln 3$
40. $\int_0^{1/2} \frac{\sin^{-1} x}{\sqrt{1-x^2}} dx = \frac{\pi^2}{72}$