

NOT CONSUMABLE!

Section Exercises 5.9

In Exercises 1–40, evaluate each integral.

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|--|---|--|--|
| 1. $\int \frac{1}{x+1} dx$ | 2. $\int \frac{1}{x-5} dx$ | 29. $\int \csc 2x dx$ | 30. $\int \sec \frac{x}{2} dx$ |
| 3. $\int \frac{1}{3-2x} dx$ | 4. $\int \frac{1}{6x+1} dx$ | 31. $\int \cos(1-x) dx$ | 32. $\int \frac{\tan^2 2x}{\sec 2x} dx$ |
| 5. $\int \frac{x}{x^2+1} dx$ | 6. $\int \frac{x^2}{3-x^3} dx$ | 33. $\int \frac{\sec x \tan x}{\sec x - 1} dx$ | 34. $\int \frac{\sin x}{1 + \cos x} dx$ |
| 7. $\int \frac{x^2-4}{x} dx$ | 8. $\int \frac{x+5}{x} dx$ | 35. $\int \frac{\cos t}{1 + \sin t} dt$ | 36. $\int (\sec t + \tan t) dt$ |
| 9. $\int_1^e \frac{\ln x}{2x} dx$ | 10. $\int_e^{e^2} \frac{1}{x(\ln x)} dx$ | 37. $\int (\csc x - \sin x) dx$ | 38. $\int \frac{\sin^2 x - \cos^2 x}{\cos x} dx$ |
| 11. $\int_1^e \frac{(1 + \ln x)^2}{x} dx$ | 12. $\int_0^1 \frac{x-1}{x+1} dx$ | 39. $\int \frac{1 - \cos \theta}{\theta - \sin \theta} d\theta$ | 40. $\int (\csc 2\theta - \cot 2\theta)^2 d\theta$ |
| 13. $\int_0^2 \frac{x^2-2}{x+1} dx$ | 14. $\int \frac{1}{(x+1)^2} dx$ | In Exercises 41–44, show the equivalence of each pair of formulas. | |
| 15. $\int \frac{1}{\sqrt{x+1}} dx$ | 16. $\int \frac{x+3}{x^2+6x+7} dx$ | 41. $\int \tan x dx = -\ln \cos x + C$ | |
| 17. $\int \frac{x^2+2x+3}{x^3+3x^2+9x+1} dx$ | | $\int \tan x dx = \ln \sec x + C$ | |
| 18. $\int \frac{(\ln x)^2}{x} dx$ | | 42. $\int \cot x dx = \ln \sin x + C$ | |
| 19. $\int \frac{1}{x^{2/3}(1+x^{1/3})} dx$ | 20. $\int \frac{1}{x \ln(x^2)} dx$ | $\int \cot x dx = -\ln \csc x + C$ | |
| 21. $\int \frac{1}{1+\sqrt{x}} dx$ | 22. $\int \frac{1-\sqrt{x}}{1+\sqrt{x}} dx$ | 43. $\int \sec x dx = \ln \sec x + \tan x + C$ | |
| 23. $\int \frac{\sqrt{x}}{\sqrt{x}-3} dx$ | 24. $\int_0^2 \frac{1}{1+\sqrt{2x}} dx$ | $\int \sec x dx = -\ln \sec x - \tan x + C$ | |
| 25. $\int \frac{\sqrt{x}}{1-x\sqrt{x}} dx$ | 26. $\int \frac{2x}{(x-1)^2} dx$ | 44. $\int \csc x dx = -\ln \csc x + \cot x + C$ | |
| 27. $\int \frac{x(x-2)}{(x-1)^3} dx$ | 28. $\int \tan 5x dx$ | $\int \csc x dx = \ln \csc x - \cot x + C$ | |

Reminder $\tan^2 x = \sec^2 x - 1$