

1. $\int \frac{(1 + \sqrt{x})^2}{\sqrt{x}} dx$
2. $\int \frac{x^2 + 2x + 2}{x + 2} dx$
3. $\int \frac{e^{1/x^2}}{x^3} dx$
4. $\int (e^{2x} + 1)^2 dx$
5. $\int e^{2x} \sqrt{e^{2x} + 1} dx$
6. $\int e^x \sqrt{e^{2x} + 1} dx$
7. $\int \frac{1}{\sqrt{x}(1 - \sqrt{x})} dx$
8. $\int x \sec^2(x^2) dx$
9. $\int x \sin x^2 \cos x^2 dx$
10. $\int x \sin 2x \cos 2x dx$
11. $\int \tan^5(2\theta/7) \sec^2(2\theta/7) d\theta$
12. $\int x \arctan x dx$
13. $\int \frac{1}{x\sqrt{x^2 - 5}} dx$
14. $\int \frac{x^2 + 5x + 2}{x^3 + x^2 + x + 1} dx$
15. $\int \frac{1}{x\sqrt{6x - x^2}} dx$
16. $\int \sin \theta \sin 2\theta d\theta$
17. $\int \frac{1}{x} \ln \left(\frac{e + 1}{x^2} \right) dx$
18. $\int \frac{x - 3}{x^3 + x^2} dx$
19. $\int \frac{\sqrt[3]{t}}{1 + \sqrt[3]{t}} dt$
20. $\int \frac{1}{x^2 \sqrt{1 - 4x^2}} dx$
21. $\int x \sqrt{1 - x^4} dx$
22. $\int \csc^3 \left(\frac{x}{3} \right) \cot^3 \left(\frac{x}{3} \right) dx$
23. $\int x^4 \ln x dx$
24. $\int x \ln^4 x dx$
25. $\int \frac{\sin^3 x - \tan^2 x}{\cos^2 x} dx$
26. $\int \frac{e^x}{e^x - 2 + e^{-x}} dx$
27. $\int \frac{x + 5}{x^2 + 2x + 5} dx$
28. $\int \frac{5x^2}{\sqrt{3 - 2x^2}} dx$
29. $\int \frac{\sin^2 \theta \tan \theta}{\sec^5 \theta} d\theta$
30. $\int \frac{e^z - e^{-z}}{1 - e^{-z}} dz$
31. $\int e^{\sin^2 x} e^{\cos^2 x} dx$
32. $\int \frac{x^4 - 6x^2 - 3x + 3}{x^2 - 3x + 2} dx$
33. $\int \frac{\sec^2(\ln x) \tan^2(\ln x)}{3x} dx$
34. $\int \frac{1}{3x \sqrt{\ln(x^2) + 1}} dx$
35. $\int \frac{x^3}{(x^2 + 4)^{1/3}} dx$
36. $\int \sec^4(5x) dx$
37. $\int \sin(3 \ln x) dx$
38. $\int \frac{11 - 5x}{x^3 + 3x^2 + 4x + 12} dx$
39. $\int \sin \theta \cos 2\theta \cos \theta d\theta$
40. $\int \frac{\sqrt{1 - x^2}}{x^2} dx$
41. $\int \frac{\sqrt{1 - x^2}}{x} dx$
42. $\int e^{-2x} \sin(x/2) dx$
43. $\int \frac{x}{x^3 + 3x^2 + 3x + 1} dx$
44. $\int \frac{\cos^2 \theta + \sin \theta}{\sin 2\theta} d\theta$
45. $\int \frac{x \cos x}{\sin^3 x} dx$
46. $\int \frac{1}{\sqrt{3 - 4t - 4t^2}} dt$
47. $\int \sqrt{\tan^5 \theta \sec^4 \theta} d\theta$
48. $\int \frac{1}{\sin^2 t + \cos 2t} dt$
49. $\int \frac{1}{\sqrt{x} - \sqrt[4]{x}} dx$
50. $\int \frac{\cos^3 \pi t}{\sqrt{\sin \pi t}} dt$
51. $\int \frac{\sin^2(\tan \theta) \sec^2(\tan \theta)}{\cos^2 \theta} d\theta$
52. $\int \ln(\sqrt{t} + 1) dt$
53. $\int \arctan(1 - \sqrt{x}) dx$
54. $\int \cot 2\theta \sin \theta d\theta$
55. $\int \cot \theta \sin 2\theta d\theta$
56. $\int \cot 2\theta \sin 2\theta d\theta$
57. $\int \frac{3}{(x^2 + 3)^{3/2}} dx$
58. $\int \frac{x^2 + 3}{\sqrt{x^2 + 10x + 34}} dx$
59. $\int \frac{8x^2 - 4x - 9}{2x^3 + x^2 - 3x} dx$
60. $\int \frac{1}{x^4 + 1} dx$

ANSWERS

1. $2\sqrt{x} + 2x + \frac{2}{3}x^{3/2} + C$
2. $\frac{1}{2}x^2 + 2\ln|x+2| + C$
3. $-\frac{1}{2}e^{1/x^2} + C$
4. $\frac{1}{4}e^{4x} + e^{2x} + x + C$
5. $\frac{1}{3}(e^{2x} + 1)^{3/2} + C$
6. $\frac{1}{2}(e^x\sqrt{e^{2x}+1} - \ln(e^x + \sqrt{e^{2x}+1})) + C$
7. $-2\ln(1 - \sqrt{x}) + C$
8. $\frac{1}{2}\tan x^2 + C$
9. $\frac{1}{4}\sin^2(x^2)$
10. $\frac{1}{32}\sin(4x) - \frac{1}{8}x\cos(4x) + C$
11. $\frac{7}{12}\tan^6(2\theta/7) + C$
12. $\frac{1}{2}x^2\arctan x - \frac{1}{2}\arctan x + \frac{1}{2}x + C$
13. $\frac{1}{\sqrt{5}}\operatorname{arcsec}\frac{x}{\sqrt{5}} + C$
14. $\ln\left|\frac{x^2+1}{x+1}\right| + 3\arctan x + C$
15. $-\frac{\sqrt{6x-x^2}}{3x} + C$
16. $\frac{2}{3}\sin^3 x + C$
17. $-\frac{1}{4}\ln^2\left(\frac{e+1}{x^2}\right) + C$
18. $\frac{3}{x} + \ln\left(\frac{x}{x+1}\right)^4 + C$
19. $(1 + \sqrt[3]{x})^3 - \frac{9}{2}(1 + \sqrt[3]{x})^2 + 9(1 + \sqrt[3]{x}) - 3\ln|1 + \sqrt[3]{x}| + C$
20. $-\frac{\sqrt{1-4x^2}}{x} + C$
21. $\frac{1}{4}\arcsin x^2 + \frac{1}{4}x^2\sqrt{1-x^4} + C$
22. $-\frac{3}{5}\csc^5\left(\frac{x}{3}\right) + \csc^3\left(\frac{x}{3}\right) + C$
23. $\frac{1}{5}x^5\ln x - \frac{1}{25}x^5 + C$
24. $\frac{1}{4}x^2(2\ln^4 x - 4\ln^3 x + 6\ln^2 x - 6\ln x + 3) + C$
25. $\sec x + \cos x - \frac{1}{3}\tan^3 x + C$
26. $\ln|e^x - 1| - \frac{1}{e^x - 1} + C$
27. $\ln\sqrt{x^2 + 2x + 5} + 2\arctan\frac{x+1}{2} + C$
28. $\frac{15}{4\sqrt{2}}\arcsin\frac{\sqrt{2}x}{\sqrt{3}} - \frac{5}{4}x\sqrt{3-2x^2} + C$
29. $\frac{1}{7}\cos^7\theta - \frac{1}{5}\cos^5\theta + C$
30. $e^z + z + C$
31. $ex + C$
32. $\frac{1}{3}x^3 + \frac{3}{2}x^2 + x + 5\ln|x-1| - 11\ln|x-2| + C$
33. $\frac{1}{9}\tan^3(\ln x) + C$
34. $3\sqrt{\ln(x^2) + 1} + C$
35. $\frac{3}{10}(x^2 - 6)(x^2 + 4)^{2/3} + C$
36. $\frac{1}{5}\tan(5x) + \frac{1}{15}\tan^3(5x) + C$
37. $\frac{1}{10}x\sin(3\ln x) - 3\cos(3\ln x) + C$
38. $\ln\frac{(x+3)^2}{x^2+4} + \frac{1}{2}\arctan\frac{x}{2} + C$
39. $-\frac{1}{16}\cos 4x + C$ or $\frac{1}{2}\sin^2 x \cos^2 x + C$ (among other forms)
40. $\arcsin x - \frac{\sqrt{1-x^2}}{x} + C$
41. $\sqrt{1-x^2} + \ln\left|\frac{x}{\sqrt{1-x^2}+1}\right| + C$
42. $-\frac{2}{17}e^{-2x}(4\sin(x/2) + \cos(x/2)) + C$
43. $\frac{-2x+1}{2(x+1)^2} + C$
44. $\ln\sqrt{\tan\theta(1+\sin\theta)} + C$
45. $-\frac{1}{2}x\csc^2 x - \frac{1}{2}\cot x + C$
46. $\frac{1}{2}\arcsin\left(t + \frac{1}{2}\right) + C$
47. $\frac{2}{7}\tan^{7/2}\theta + C$
48. $\tan t + C$
49. $2\sqrt{x} + 4\sqrt[4]{x} + 4\ln|\sqrt[4]{x}-1| + C$
50. $\frac{2\sqrt{\sin\pi t}}{5\pi}(5 - \sin^2\pi t) + C$
51. $\tan(\tan x) - \tan x + C$
52. $\sqrt{t} - \frac{t}{2} + (t-1)\ln(\sqrt{t}+1) + C$
53. $\sqrt{x} + \ln(x - 2\sqrt{x} + 2) + x\arctan(1 - \sqrt{x}) + C$
54. $\sin\theta - \frac{1}{2}\ln|\sec\theta + \tan\theta| + C$
55. $\theta + \sin\theta\cos\theta + C$
56. $\frac{1}{2}\sin 2\theta + C$
57. $\frac{x}{\sqrt{x^2+3}} + C$
58. $\frac{3}{2}(x-15)\sqrt{x^2+10x+34} - \frac{27}{2}\ln\left|\frac{\sqrt{x^2+10x+34}+x+5}{3}\right| + 84\arctan\left(\frac{x+5}{3}\right) + C$
59. $\ln\left|\frac{x^3(2x+3)^2}{x-1}\right|$
60. $\frac{1}{4\sqrt{2}}\left(\ln\left|\frac{x+2\sqrt{x}+1}{x-2\sqrt{x}+1}\right| - 2\arctan(1-2\sqrt{x}) + 2\arctan(1+2\sqrt{x})\right) + C$