

Additional integration practice answers

1. $\int \frac{2}{3x-4} dx$	$\frac{2}{3} \ln 3x-4 + C$
2. $\int \frac{1}{(2x+1)^3} dx$	$-\frac{1}{4(2x+1)^2} + C$
3. $\int (x+1)(x-5)^7 dx$	$(x-5)^8 \left(\frac{1}{9}(x-5) + \frac{3}{4} \right) + C$
4. $\int x \cos 2x dx$	$\frac{1}{4} (2x \sin 2x + \cos 2x) + C$
5. $\int \frac{e^{2x}}{\sqrt{e^{2x}+4}} dx$	$-\sqrt{e^{2x}+4} + C$
6. $\int \cos^7 \left(\frac{x}{2} \right) dx$	$\sin \frac{x}{2} \left(2 - 2 \sin^2 \left(\frac{x}{2} \right) + \frac{6}{5} \sin^4 \left(\frac{x}{2} \right) - \frac{2}{7} \sin^6 \left(\frac{x}{2} \right) \right) + C$
7. $\int \frac{x+2}{x+5} dx$	$x - 3 \ln x+5 + C$
8. $\int \frac{1+\sin x}{\cos x} dx$	$\ln \sec^2 x + \sec x \tan x + C$
9. $\int x^2 e^{3x} dx$	$\frac{1}{27} e^{3x} (9x^2 - 6x + 2) + C$
10. $\int x^2 e^{x^3} dx$	$\frac{1}{3} e^{x^3} + C$
11. $\int \frac{4}{\sqrt{3-6x-x^2}} dx$	$4 \arcsin \left(\frac{x+3}{2\sqrt{3}} \right) + C$
12. $\int \frac{x^2+3x+2}{x} dx$	$\frac{1}{2} x^2 + 3x + 2 \ln x + C$
13. $\int \frac{1}{\cos^2 4x} dx$	$\frac{1}{4} \tan 4x + C$
14. $\int \sqrt{25-4x^2} dx$	$\frac{1}{2} x \sqrt{25-4x^2} + \frac{25}{4} \arcsin \left(\frac{2x}{5} \right) + C$
15. $\int \frac{1-\sin 2x}{\cos^2 2x} dx$	$\frac{1}{2} (\tan 2x - \sec 2x) + C$

16. $\int \ln(3x-2) dx$	$\frac{1}{3}(3x-2)(\ln 3x-2 -1) + C$
17. $\int \frac{x+4}{x^2+3} dx$	$\ln \sqrt{x^2+3} + \frac{4}{\sqrt{3}} \arctan\left(\frac{x}{\sqrt{3}}\right) + C$
18. $\int \frac{\sin(4x-1)}{\cos^5(4x-1)} dx$	$\frac{1}{16 \cos^4(4x-1)} + C$
19. $\int \arccos 2x dx$	$x \arccos 2x - \frac{1}{2} \sqrt{1-4x^2} + C$
20. $\int \frac{2}{\sin^2 3x \cos^2 3x} dx$	$-\frac{4}{3} \cot 6x + C$
21. $\int \frac{8x}{\sqrt{2x^2+3}} dx$	$4\sqrt{2x^2+3} + C$
22. $\int (\sin^2 3x + 1)^2 dx$	$\frac{19}{8}x - \frac{1}{4} \sin 6x + \frac{1}{96} \sin 12x + C$
23. $\int \frac{\arcsin x}{\sqrt{1-x^2}} dx$	$\frac{1}{2} (\arcsin x)^2 + C$
24. $\int \frac{1}{x \ln x} dx$	$\ln (\ln x) + C$
25. $\int \frac{25+x}{25+x^2} dx$	$5 \arctan\left(\frac{x}{5}\right) + \ln \sqrt{25+5x^2} + C$
26. $\int e^x \sin \frac{x}{2} \cos \frac{x}{2} dx$	$\frac{1}{4} e^x (\sin x - \cos x) + C$
27. $\int \frac{x+1}{\sqrt{2x-1}} dx$	$\frac{1}{3} (x+4) \sqrt{2x-1} + C$
28. $\int \frac{x}{\sqrt{25-x^2}} dx$	$-\sqrt{25-x^2} + C$
29. $\int \frac{\sqrt{25-x^2}}{x^2} dx$	$\frac{-\sqrt{25-x^2}}{x} - \arcsin\left(\frac{x}{5}\right) + C$
30. $\int \frac{x+2}{\sqrt{4-3x^2}} dx$	$\frac{2}{\sqrt{3}} \arcsin\left(\frac{\sqrt{3}x}{2}\right) - \frac{1}{3} \sqrt{4-3x^2} + C$
31. $\int (x^2+2)(x^3+6x-5)^4 dx$	$\frac{1}{3} \ln x^3+6x-5 + C$

32. $\int \frac{2(3x^2 - 2)}{\cos^2(x^3 - 2x + 1)} dx$	$2 \tan(x^3 - 2x + 1) + C$
33. $\int x^3 \ln x dx$	$\frac{1}{16} x^4 (4 \ln x - 1) + C$
34. $\int x^3 e^{x^2} dx$	$\frac{1}{2} e^{x^2} (x^2 - 1) + C$
35. $\int \frac{\sin 5x}{\cos^2 5x} dx$	$\frac{1}{5} \sec 5x + C$
36. $\int \frac{1}{x^2 \sqrt{9 - 9x^2}} dx$	$-\frac{\sqrt{1 - x^2}}{3x} + C$
37. $\int \frac{x + 5}{x^2 - 6x + 13} dx$	$\ln \sqrt{x^2 - 6x + 13} + 4 \arctan\left(\frac{x - 3}{2}\right) + C$
38. $\int \sin 6x \cos 3x dx$	$-\frac{2}{9} \cos^3 3x + C$
39. $\int \sqrt{\frac{1 - 3x}{1 + 3x}} dx$	$\frac{1}{3} (\arcsin 3x + \sqrt{1 - 9x^2}) + C$
40. $\int \frac{x + 3}{e^{x^2 + 6x + 1}} dx$	$\frac{1}{2e^{x^2 + 6x + 1}} + C$
41. $\int \tan^5 4x dx$	$\frac{1}{16} (\sec^4 4x - 4 \sec^2 4x + 4 \ln \sec 4x) + C$
42. $\int \frac{2e^x}{e^{2x} + 9} dx$	$\frac{2}{3} \arctan\left(\frac{e^x}{3}\right) + C$
43. $\int \frac{x}{x - 1} dx$	$x + \ln x - 1 + C$
44. $\int \sqrt{x^2 + 3} dx$	$\frac{x\sqrt{3x^2 + 9} + \ln(\sqrt{x^2 + 3} + x)}{2} + C$
45. $\int \sin 2x \cos^4 x dx$	$-\frac{1}{3} \cos^6 x + C$