# Integration Master Sheet – Spring 2023

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April 2023

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| $\int \sin(2x)\,dx$ | $\int 5x(1-4x^2)^{20}\,dx$ | $\int \frac{1}{\sqrt[4]{8-x}}\,dx$ | $\int \frac{1}{(25-4x^2)^{\frac{3}{2}}}\,dx$ | $\int \frac{1}{x^2\sqrt{4x^2-81}}\,dx$ |
| $\int \frac{1}{\sqrt{x^2+4}}\,dx$ | $\int x\cos(x^2)\,dx$ | $\int x\sin(x)\,dx$ | $\int \frac{2x}{(x^2+1)}\,dx$ | $\int \frac{100}{\sqrt{x^2-1}}\,dx$ |
| $\int (e^e+e^x+x^e+e^{2x})\,dx$ | $\int 3x^2e^{x^3}\,dx$ | $\int \frac{(x^2+1)}{(2x-3)}\,dx$ | $\int \frac{(x^2+1)}{2x}\,dx$ | $\int 2x\sin(3x^2-1)\,dx$ |
| $\int \tan(x)\sec^3(x)\,dx$ | $\int e^{4x}\cos(3x)\,dx$ | $\int \frac{1}{\sqrt{4x^2+9}}\,dx$ | $\int \frac{(5x+1)}{(x+3)^2}\,dx$ | $\int \frac{x^2+20x-15}{x^3+4x^2-5x}\,dx$ |
| $\int \frac{x^2}{x^3-x^2+x-1}\,dx$ | $\int \sqrt{x^2-4}\,dx$ | $\int \frac{1}{3x\sqrt{25-9x^2}}\,dx$ | $\int \frac{1}{(x^2-8x+25)^{\frac{3}{2}}}\,dx$ | $\int x^2e^{-2x}\,dx$ |
| $\int (x^2+3)\cos(4x)\,dx$ | $\int \tan^{-1}(x)\,dx$ | $\int e^x\sin(2x)\,dx$ | $\int x^2\ln(x)\,dx$ | $\int x\sec^2(x)\,dx$ |
| $\int x^{17}e^{1+9x}\,dx$ | $\int \frac{6x^2+13x-5}{2x+5}\,dx$ | $\int \frac{x^2+5x+4}{x+1}\,dx$ | $\int \frac{x^3-4x^2-24}{x-5}\,dx$ | $\int \frac{6x^3+20x^2-21}{3x+7}\,dx$ |
| $\int \frac{\ln(x)}{x}\,dx$ | $\int \sec^4(x)\,dx$ | $\int \frac{x^2}{\sqrt{1-x^2}}\,dx$ | $\int x^2e^x\,dx$ | $\int \frac{1}{1+\cos(x)}\,dx$ |
| $\int \frac{\sec^2 x}{\sqrt{\tan(x)}}\,dx$ | $\int e^{2x+1}\cos(2x+1)\,dx$ | $\int x^4\ln(x)\,dx$ | $\int \frac{x^2+1}{2x}\,dx$ | $\int \sin^3(x)\cos^3(x)\,dx$ |

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| $\int \ln(300x)\,dx$ | $\int \tan^{\frac{4}{3}}\sec^4(x)\,dx$ | $\int \frac{1}{(9-16x^2)^{\frac{3}{2}}}\,dx$ | $\int x^2 - 3x^{\frac{4}{3}} - 5\,dx$ | $\int x^{2e} + 9e^3 + e^{\frac{1}{2}x}\,dx$ |
| $\int \frac{x^3 - 9x^2 + x + 5}{3x^2}\,dx$ | $\int \frac{4x^3 + x - 7}{x^2 + 1}\,dx$ | $\int \sec^2(\pi x + 1)\,dx$ | $\int \frac{1}{1 - 10x}\,dx$ | $\int x^2 e^{x^3+2}\,dx$ |
| $\int 3x\sin(9x)\,dx$ | $\int \cos^3(4x)\sin(4x)\,dx$ | $\int \frac{1}{(9-25x^2)}\,dx$ | $\int \frac{3x^2 - 7x - 2}{x^3 - x}\,dx$ | $\int \frac{5x^2 + 20x + 6}{x^3 + 2x^2 + x}\,dx$ |
| $\int x^e + e^x + e^e\,dx$ | $\int \frac{10}{\sqrt{1-x^2}}\,dx$ | $\int \frac{10x^3 - x^7 - 5x^{11}}{5x^8}\,dx$ | $\int 3xe^{x^2}\,dx$ | $\int x\cos(10x)\,dx$ |
| $\int \frac{1}{x(x-1)(x+4)}\,dx$ | $\int \sin^3(x)\cos^3(x)\,dx$ | $\int \frac{1}{x^2\sqrt{4x^2-9}}\,dx$ | $\int x^\pi + \pi x^2 + \pi x\,dx$ | $\int \frac{100}{x^2+1}\,dx$ |
| $\int \frac{2 + 10x^4 - x^5}{5x^6}\,dx$ | $\int 10x^2\sin(x^3)\,dx$ | $\int 4xe^{2x}\,dx$ | $\int \frac{1}{x(x+1)(x-3)}\,dx$ | $\int \frac{1}{x^2\sqrt{x^2-1}}\,dx$ |
| $\int \frac{1}{3}x^3 - 9x + \pi\,dx$ | $\int \frac{-9}{1+x^2}\,dx$ | $\int \frac{12x^3 - 2x^4 - x^5}{3x^4}\,dx$ | $\int x^2\cos(\pi x^3)\,dx$ | $\int \frac{3x^2 + x - 2}{x(x-1)(x+3)}\,dx$ |
| $\int xe^{3x}\,dx$ | $\int \sin(x)\cos^3(x)\,dx$ | $\int \frac{1}{(100-81x^2)}\,dx$ | $\int \ln(x)\,dx$ | $\int \tan(x)\,dx$ |