

100 Integrals

@blackpenredpen March 1st, 2019

Video: <https://youtu.be/dgm4-3-lv3s>

$$(Q1.) \int \tan^5 x \sec^3 x \, dx$$

$$(Q2.) \int \frac{\cos(2x)}{\sin x + \cos x} \, dx$$

$$(Q3.) \int \frac{x^2 + 1}{x^4 - x^2 + 1} \, dx$$

$$(Q4.) \int (x + e^x)^2 \, dx$$

$$(Q5.) \int \csc^3 x \sec x \, dx$$

$$(Q6.) \int \frac{\cos x}{\sin^2 x - 5 \sin x - 6} \, dx$$

$$(Q7.) \int \frac{1}{\sqrt{e^x}} \, dx$$

$$(Q8.) \int \frac{e^x \sqrt{e^x - 1}}{e^x + 3} \, dx$$

$$(Q9.) \int \frac{1}{x + \sqrt{x}} \, dx$$

$$(Q10.) \int_{-1}^5 |x - 3| \, dx$$

$$(Q11.) \int \frac{\sin x}{\sec^{2019} x} \, dx$$

$$(Q12.) \int \frac{x \sin^{-1} x}{\sqrt{1 - x^2}} \, dx$$

$$(Q13.) \int \frac{2 \sin x}{\sin(2x)} \, dx$$

$$(Q14.) \int \cos^2(2x) \, dx$$

$$(Q15.) \int \frac{1}{x^3 + 1} \, dx$$

$$(Q16.) \int x \sin^2 x \, dx$$

$$(Q17.) \int \left(x + \frac{1}{x}\right)^2 \, dx$$

$$(Q18.) \int \frac{3}{x^2 + 4x + 29} \, dx$$

$$(Q19.) \int \cot^5 x \, dx$$

$$(Q20.) \int_{-1}^1 \frac{\tan x}{x^4 - x^2 + 1} \, dx$$

$$(Q21.) \int \sin^3 x \cos^2 x \, dx$$

$$(Q22.) \int \frac{1}{x^2 \sqrt{x^2 + 1}} \, dx$$

$$(Q23.) \int \sin x \sec x \tan x \, dx$$

$$(Q24.) \int \sec^3 x \, dx$$

$$(Q25.) \int \frac{1}{x \sqrt{9x^2 - 1}} \, dx$$

$$(Q26.) \int \cos \sqrt{x} \, dx$$

$$(Q27.) \int \csc x \, dx$$

$$(Q28.) \int \sqrt{x^2 + 4x + 13} \, dx$$

$$(Q29.) \int e^{2x} \cos x \, dx$$

$$(Q30.) \int_3^5 (x - 3)^9 \, dx$$

$$(Q31.) \int \frac{1}{\sqrt{x - x^{\frac{3}{2}}}} \, dx$$

$$(Q32.) \int \frac{1}{\sqrt{x - x^2}} \, dx$$

$$(Q33.) \int e^{2 \ln x} \, dx$$

$$(Q34.) \int \frac{\ln x}{\sqrt{x}} \, dx$$

$$(Q35.) \int \frac{1}{e^x + e^{-x}} \, dx$$

$$(Q36.) \int \log_2 x \, dx$$

$$(Q37.) \int x^3 \sin(2x) \, dx$$

$$(Q38.) \int x^2 \sqrt[3]{1 + x^3} \, dx$$

$$(Q39.) \int \frac{1}{(x^2 + 4)^2} \, dx$$

$$(Q40.) \int_1^2 \sqrt{x^2 - 1} \, dx$$

$$\begin{aligned}
(Q41.) & \int \sinh x \, dx \\
(Q42.) & \int \sinh^2 x \, dx \\
(Q43.) & \int \sinh^3 x \, dx \\
(Q44.) & \int \frac{1}{\sqrt{x^2+1}} \, dx \\
(Q45.) & \int \ln(x + \sqrt{1+x^2}) \, dx \\
(Q46.) & \int \tanh x \, dx \\
(Q47.) & \int \operatorname{sech} x \, dx \\
(Q48.) & \int \tanh^{-1} x \, dx \\
(Q49.) & \int \sqrt{\tanh x} \, dx \\
(Q50.) & \int_0^5 [x] \, dx, [x] \text{ is the floor function} \\
(Q51.) & \int \sec^6 x \, dx \\
(Q52.) & \int \frac{1}{(5x-2)^4} \, dx \\
(Q53.) & \int \ln(1+x^2) \, dx \\
(Q54.) & \int \frac{1}{x^4+x} \, dx \\
(Q55.) & \int \frac{1-\tan x}{1+\tan x} \, dx \\
(Q56.) & \int x \sec x \tan x \, dx \\
(Q57.) & \int \sec^{-1} x \, dx \\
(Q58.) & \int \frac{1-\cos x}{1+\cos x} \, dx \\
(Q59.) & \int x^2 \sqrt{x+4} \, dx \\
(Q60.) & \int_{-1}^1 \sqrt{4-x^2} \, dx \\
(Q61.) & \int \sqrt{x^2+4x} \, dx \\
(Q62.) & \int x^2 e^{x^3} \, dx \\
(Q63.) & \int x^3 e^{x^2} \, dx \\
(Q64.) & \int \tan x \ln(\cos x) \, dx \\
(Q65.) & \int \frac{1}{x^3-4x^2} \, dx \\
(Q66.) & \int \sin x \cos(2x) \, dx \\
(Q67.) & \int 2^{\ln x} \, dx \\
(Q68.) & \int \sqrt{1+\cos(2x)} \, dx \\
(Q69.) & \int \frac{1}{1+\tan x} \, dx \\
(Q70.) & \int_{\frac{1}{2}}^e \frac{\sqrt{1-(\ln x)^2}}{x} \, dx \\
(Q71.) & \int \frac{1}{\sqrt[3]{x+1}} \, dx \\
(Q72.) & \int \frac{1}{\sqrt[3]{x+1}} \, dx \\
(Q73.) & \int (\sin x + \cos x)^2 \, dx \\
(Q74.) & \int 2x \ln(1+x) \, dx \\
(Q75.) & \int \frac{1}{x(1+\sin^2(\ln x))} \, dx \\
(Q76.) & \int \sqrt{\frac{1-x}{1+x}} \, dx \\
(Q77.) & \int x^{\frac{x}{\ln x}} \, dx \\
(Q78.) & \int \sin^{-1}(\sqrt{x}) \, dx \\
(Q79.) & \int \tan^{-1} x \, dx \\
(Q80.) & \int_0^5 f(x) \, dx, \text{ where } f(x) = \begin{cases} 10 & \text{if } x \leq 2 \\ 3x^2 - 2 & \text{if } x > 2 \end{cases} \\
(Q81.) & \int \frac{\sin(\frac{1}{x})}{x^3} \, dx \\
(Q82.) & \int \frac{x-1}{x^4-1} \, dx \\
(Q83.) & \int \sqrt{1+(x-\frac{1}{4x})^2} \, dx \\
(Q84.) & \int \frac{e^{\tan x}}{1-\sin^2 x} \, dx \\
(Q85.) & \int \frac{\tan^{-1} x}{x^2} \, dx
\end{aligned}$$

$$(Q86.) \int \frac{\tan^{-1} x}{1+x^2} dx$$

$$(Q87.) \int (\ln x)^2 dx$$

$$(Q88.) \int \frac{\sqrt{x^2+4}}{x^2} dx$$

$$(Q89.) \int \frac{\sqrt{x+4}}{x} dx$$

$$(Q90.) \int_0^{\frac{\pi}{2}} \frac{\sin^3 x}{\sin^3 x + \cos^3 x} dx$$

$$(Q91.) \int \frac{x}{1+x^4} dx$$

$$(Q92.) \int e^{\sqrt{x}} dx$$

$$(Q93.) \int \frac{1}{\csc^3 x} dx$$

$$(Q94.) \int \frac{\sin^{-1} x}{\sqrt{1-x^2}} dx$$

$$(Q95.) \int \sqrt{1+\sin(2x)} dx$$

$$(Q96.) \int \sqrt[4]{x} dx$$

$$(Q97.) \int \frac{1}{1+e^x} dx$$

$$(Q98.) \int \sqrt{1+e^x} dx$$

$$(Q99.) \int \frac{\sqrt{\tan x}}{\sin(2x)} dx$$

$$(Q100.) \int_0^{\frac{\pi}{2}} \frac{1}{1+\sin x} dx$$

$$(Q101.) \int \left(\frac{\sin x}{x} + \ln x \cos x \right) dx$$