

Download Standard Definite Integrals

In mathematics, the definite integral: is the area of the region in the xy-plane bounded by the graph of f, the x-axis, and the lines $x = a$ and $x = b$, such that area above the x-axis adds to the total, and that below the x-axis subtracts from the total. Integrals with Logarithms $\int \ln x dx = x \ln x - x + C$ (42) $\int \ln x^2 dx = 2x \ln x - 2x + C$ (43) $\int \ln(ax + b) dx = \frac{x}{a} \ln(ax + b) - \frac{x}{a} + C$; $a \neq 0$ (44) $\int \ln(x^2 + a^2) dx = x \ln(x^2 + a^2) + 2 \arctan \frac{x}{a} - 2x + C$ (45) $\int \frac{1}{x^2 + a^2} dx = \frac{1}{a} \arctan \frac{x}{a} + C$ (46) $\int \frac{1}{ax^2 + bx + c} dx = \frac{1}{4ac - b^2} \tan^{-1} \frac{2ax + b}{\sqrt{4ac - b^2}} + \frac{1}{2a} \ln |ax^2 + bx + c| + C$ (47) $\int x \ln(ax + b) dx = \frac{bx + 2a}{4} \ln(ax + b) - \frac{bx^2}{2} + \frac{1}{2} x^2 - \frac{b^2}{2a} \ln(ax + b) + C$ (48) $\int x \ln(a^2 - b^2x^2) dx = \frac{1}{2} x^2 + \frac{1}{2} x^2 \frac{a^2 - b^2}{a^2 - b^2} \ln(a^2 - b^2x^2) + C$ (49) Integrals with Exponentials $\int e^{ax} dx = \frac{1}{a} e^{ax} + C$ Definite Integral. A Definite Integral has start and end values: in other words there is an interval $[a, b]$. a and b (called limits, bounds or boundaries) are put at the bottom and top of the "S", like this: We find the Definite Integral by calculating the Indefinite Integral at a , and b , then subtracting: Definite integrals definitions and formulas involving definite integrals, Standard Definite Integrals.

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