Integration

15. Integration

1) $\int dx = x + c$

2) $\int x^n dx = \frac{x^{n+1}}{n+1} + c$

3) $\int \cos x \, dx = \sin x + c$

4) $\int \sin x \, dx = -\cos x + c$

5) $\int sec^2 x \, dx = \tan x + c$

6) $\int \sec x \tan x \, dx = \sec x + c$

7) $\int cosec\, x \cot x \, dx = -cosec\, x + c$

8) $\int cosec^2 x \, dx = -\cot x + c$

9) $\int \frac{1}{x} dx = \log x + c$

10) $\int e^x dx = e^x + c$

11) $\int a^x dx = \frac{a^x}{\log a} + c$

12) $\int \tan x \, dx = \log(\sec x) + c$

13) $\int \cot x \, dx = \log(\sin x) + c$

14) $\int \sec x \, dx = \log(\sec x + \tan x) + c$

15) $\int cosec\, x \, dx = \log(cosec\, x - \cot x) + c$

16) LIATE RULE BY PARTS

$$\int u \cdot v \, dx = u \int v \, dx - \int \left[\int v \, dx \cdot \frac{d}{dx} u \right] dx$$

1) $\int \frac{f'(x)}{f(x)} dx = \log(f(x)) + c$

2) $\int \frac{f'(x)}{\sqrt{f(x)}} \, dx = 2\sqrt{f(x)} + c$

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