สูตรอนุพันธ์

1. $\dfrac{dc}{dx} = 0$ $c' = 0$

2. $\dfrac{d}{dx}(x^n) = nx^{n-1}$ $(x^n)' = nx^{n-1}$

3. $\dfrac{d}{dx}(f+g) = \dfrac{df}{dx} + \dfrac{dg}{dx}$ $(f+g)' = f' + g'$

4. $\dfrac{d}{dx}(cf+kg) = c\dfrac{df}{dx} + k\dfrac{dg}{dx}$ $(cf+kg)' = cf' + kg'$

5. $\dfrac{d}{dx}(fg) = \dfrac{df}{dx}g + \dfrac{dg}{dx}f$ $(fg)' = f'g + g'f$

6. $\dfrac{d}{dx}\left(\dfrac{f}{g}\right) = \dfrac{g(x)\dfrac{d}{dx}f(x) - f(x)\dfrac{d}{dx}g(x)}{g(x)^2}$ $\left(\dfrac{f}{g}\right)' = \dfrac{gf' - fg'}{g^2}$

7. $\dfrac{d}{dx}(u^n) = nu^{n-1}\dfrac{du}{dx}$

8. $\dfrac{d}{dx}(f \circ g) = \dfrac{d}{dg(x)}f(g(x))\dfrac{d}{dx}g(x)$ $(f \circ g)'(x) = f'(g(x))g'(x)$

9. $\dfrac{d}{dx}\ln|x| = \dfrac{1}{x}$ 10. $\dfrac{d}{dx}e^x = e^x$

11. $\dfrac{d}{dx}a^x = a^x\ln a$ 12. $\dfrac{d}{dx}\log_a|x| = \dfrac{1}{x\ln a}$

13. $\dfrac{d}{dx}\sin x = \cos x$ 14. $\dfrac{d}{dx}\cos x = -\sin x$

15. $\dfrac{d}{dx}\tan x = \sec^2 x$ 16. $\dfrac{d}{dx}\cot x = -\operatorname{cosec}^2 x$

17. $\dfrac{d}{dx}\sec x = \sec x\tan x$ 18. $\dfrac{d}{dx}\operatorname{cosec} x = -\operatorname{cosec} x\cot x$

19. $\dfrac{d}{dx}\arcsin x = \dfrac{1}{\sqrt{1-x^2}}$ 20. $\dfrac{d}{dx}\arccos x = -\dfrac{1}{\sqrt{1-x^2}}$

21. $\dfrac{d}{dx}\arctan x = \dfrac{1}{1+x^2}$ 22. $\dfrac{d}{dx}\operatorname{arccot} x = -\dfrac{1}{1+x^2}$

23. $\dfrac{d}{dx}\operatorname{arcsec} x = \dfrac{1}{|x|\sqrt{x^2-1}}$ 24. $\dfrac{d}{dx}\operatorname{arccosec} x = -\dfrac{1}{|x|\sqrt{x^2-1}}$

เอกลักษณ์ตรีโกณมิติ

$\sin^2 A + \cos^2 A = 1$ $1 + \tan^2 A = \sec^2 A$ $1 + \cot^2 A = \operatorname{cosec}^2 A$

$\tan 2A = \dfrac{2\tan A}{1-\tan^2 A}$ $\sin 2A = \dfrac{2\tan A}{1+\tan^2 A}$ $\cos 2A = \dfrac{1-\tan^2 A}{1+\tan^2 A}$

$\cos^2 A = \dfrac{1+\cos 2A}{2}$ $\sin^2 A = \dfrac{1-\cos 2A}{2}$

$\cos 2A = \cos^2 A - \sin^2 A = 1 - 2\sin^2 A = 2\cos^2 A - 1$ $\sin 2A = 2\sin A\cos A$

$\sin(-A) = -\sin A$ $\cos(-A) = \cos A$ $\tan(-A) = -\tan A$

$\sin(\pi - A) = \sin A$ $\cos(\pi - A) = -\cos A$ $\tan(\pi - A) = -\tan A$

$2\sin A\cos B = \sin(A+B) + \sin(A-B)$ $2\cos A\sin B = \sin(A+B) - \sin(A-B)$

$2\cos A\cos B = \cos(A+B) + \cos(A-B)$ $2\sin A\sin B = \cos(A-B) - \cos(A+B)$

สูตรอินทิเกรต

1. $\int k\,dx = kx + C$

2. $\int x^n dx = \dfrac{x^{n+1}}{n+1} + C \; n \neq -1$

3. $\int \dfrac{1}{x}dx = \ln|x| + C$

4. $\int e^x dx = e^x + C$

5. $\int a^x dx = \dfrac{a^x}{\ln a} + C$

6. $\int \sin x\,dx = -\cos x + C$

7. $\int \cos x\,dx = \sin x + C$

8. $\int \sec^2 x\,dx = \tan x + C$

9. $\int \cosec^2 x\,dx = -\cot x + C$

10. $\int \sec x \tan x\,dx = \sec x + C$

11. $\int \cosec x \cot x\,dx = -\cosec x + C$

12. $\int \tan x\,dx = \ln|\sec x| + C$

13. $\int \cot x\,dx = \ln|\sin x| + C$

14. $\int \sec x\,dx = \ln|\sec x + \tan x| + C$

15. $\int \cosec x\,dx = \ln|\cosec x - \cot x| + C$

16. $\int \dfrac{1}{\sqrt{1-x^2}}dx = \arcsin x + C$

17. $\int \dfrac{1}{x^2+1}dx = \arctan x + C$

18. $\int \dfrac{1}{|x|\sqrt{x^2-1}}dx = \text{arc}\sec x + C$

สูตรอินทิเกรตที่ได้จากการศึกษาเรื่องเทคนิคการอินทิเกรต

19. $\int xe^x dx = (x-1)e^x + C$

20. $\int x \ln x\,dx = (\frac{1}{2}\ln x - \frac{1}{4})x^2 + C$

21. $\int \arcsin x\,dx = x\arcsin x + \sqrt{1-x^2} + C$

22. $\int \ln x\,dx = x\ln x - x + C$

23. $\int \arccos x\,dx = x\arccos x - \sqrt{1-x^2} + C$

24. $\int \arctan x\,dx = x\arctan x - \frac{1}{2}\ln(1+x^2) + C$

25. $\int \text{arc}\cot x\,dx = x\,\text{arc}\cot x + \frac{1}{2}\ln(1+x^2) + C$

26. $\int \text{arc}\sec x\,dx = x\,\text{arc}\sec x - \ln\left|x + \sqrt{x^2-1}\right| + C$

28. $\int \text{arc}\cosec x\,dx = x\,\text{arc}\cosec x + \ln\left|x + \sqrt{x^2-1}\right| + C$

29. $\int \dfrac{1}{x^2+a^2}dx = \dfrac{1}{a}\arctan(\dfrac{x}{a}) + C$

30. $\int \dfrac{1}{x^2-a^2}dx = \dfrac{1}{2a}\ln\left|\dfrac{x-a}{x+a}\right| + C$

31. $\int \dfrac{1}{\sqrt{a^2-x^2}}dx = \arcsin(\dfrac{x}{a}) + C$

32. $\int \dfrac{1}{\sqrt{x^2 \pm a^2}}dx = \ln\left|x + \sqrt{x^2 \pm a^2}\right| + C$

33. $\int x^n \ln x\,dx = x^{n+1}(\dfrac{\ln x}{n+1} - \dfrac{1}{(n+1)^2}) + C \, , n \neq -1$

34. $\int e^{ax}\sin bx\,dx = \dfrac{e^{ax}}{a^2+b^2}(a\sin bx - b\cos bx) + C$

35. $\int e^{ax}\cos bx\,dx = \dfrac{e^{ax}}{a^2+b^2}(a\cos bx + b\sin bx) + C$