Fórmulas

O ALFABETO GREGO

α	alfa	ι	iota	ρ	rô
β	beta	k	kapa	σ	sigma
γ	gama	λ	lambda	τ	tau
δ	delta	μ	mi	υ	ipsilon
ε	epsilon	ν	ni	ϕ	fi
ζ	zeta	ξ	csi	χ	qui
η	eta	o	ômicron	ψ	psi
θ	teta	π	pi	ω	ômega

FÓRMULAS DE GEOMETRIA

Os seguintes símbolos são usados para a medida:

r: raio h: altura b: base a: base C: circunferência A: área s: área da superfície
B: área da base V: volume

Círculo: $A = \pi r^2$; C: $2\pi r$

Triângulo: $A = \frac{1}{2}bh$

Retângulo e paralelogramo: $A = bh$

Trapézio: $A = \frac{1}{2}(a + b)h$

Cilindro circular reto: $V = \pi r^2 h$; $S = 2\pi rh$

Cone circular reto: $V = \frac{1}{3}\pi r^2 h$; $S = \pi r\sqrt{r^2 + h^2}$

Esfera: $V = \frac{4}{3}\pi r^3$; $S = 4\pi r^2$

Prisma (com bases paralelas): $V = Bh$

Pirâmide: $V = \frac{1}{3}Bh$

FÓRMULAS DE TRIGONOMETRIA

As Oito Identidades Trigonométricas Fundamentais

$\operatorname{sen} x \operatorname{cosec} x = 1 \qquad \cos x \sec x = 1 \qquad \operatorname{tg} x \operatorname{cotg} x = 1 \qquad \operatorname{tg} x = \dfrac{\operatorname{sen} x}{\cos x} \qquad \operatorname{cotg} x = \dfrac{\cos x}{\operatorname{sen} x}$

$\operatorname{sen}^2 x + \cos^2 x = 1 \qquad 1 + \operatorname{tg}^2 x = \sec^2 x \qquad 1 + \operatorname{cotg}^2 x = \operatorname{cosec}^2 x$

Identidades Sobre Soma e Diferença

$\operatorname{sen}(u + v) = \operatorname{sen} u \cos v + \cos u \operatorname{sen} v \qquad \operatorname{sen}(u - v) = \operatorname{sen} u \cos v - \cos u \operatorname{sen} v$

$\cos(u + v) = \cos u \cos v - \operatorname{sen} u \operatorname{sen} v \qquad \cos(u - v) = \cos u \cos v + \operatorname{sen} u \operatorname{sen} v$

$\operatorname{tg}(u + v) = \dfrac{\operatorname{tg} u + \operatorname{tg} v}{1 - \operatorname{tg} u \operatorname{tg} v} \qquad \operatorname{tg}(u - v) = \dfrac{\operatorname{tg} u - \operatorname{tg} v}{1 + \operatorname{tg} u \operatorname{tg} v}$

Identidades Sobre Medidas Múltiplas

$\operatorname{sen} 2u = 2 \operatorname{sen} u \cos u$

$\cos 2u = \cos^2 u - \operatorname{sen}^2 u \qquad \cos 2u = 1 - 2 \operatorname{sen}^2 u \qquad \cos 2u = 2 \cos^2 u - 1$

$\operatorname{tg} 2u = \dfrac{2 \operatorname{tg} u}{1 - \operatorname{tg}^2 u}$

$\operatorname{sen}^2 u = \dfrac{1 - \cos 2u}{2} \qquad \cos^2 u = \dfrac{1 + \cos 2u}{2} \qquad \operatorname{tg}^2 u = \dfrac{1 - \cos 2u}{1 + \cos 2u}$

$\operatorname{sen}^2 \tfrac{1}{2}t = \dfrac{1 - \cos t}{2} \qquad \cos^2 \tfrac{1}{2}t = \dfrac{1 + \cos t}{2}$

$\operatorname{tg} \tfrac{1}{2}t = \dfrac{1 - \cos t}{\operatorname{sen} t} \qquad \operatorname{tg} \tfrac{1}{2}t = \dfrac{\operatorname{sen} t}{1 + \cos t}$

Identidades para o Produto, Soma e Diferença de Senos e Co-senos

$\operatorname{sen} u \cos v = \tfrac{1}{2}[\operatorname{sen}(u + v) + \operatorname{sen}(u - v)] \qquad \cos u \operatorname{sen} v = \tfrac{1}{2}[\operatorname{sen}(u + v) - \operatorname{sen}(u - v)]$

$\cos u \cos v = \tfrac{1}{2}[\cos(u + v) + \cos(u - v)] \qquad \operatorname{sen} u \operatorname{sen} v = \tfrac{1}{2}[\cos(u - v) - \cos(u + v)]$

$\operatorname{sen} s + \operatorname{sen} t = 2 \operatorname{sen}\left(\dfrac{s + t}{2}\right) \cos\left(\dfrac{s - t}{2}\right) \qquad \operatorname{sen} s - \operatorname{sen} t = 2 \cos\left(\dfrac{s + t}{2}\right) \operatorname{sen}\left(\dfrac{s - t}{2}\right)$

$\cos s + \cos t = 2 \cos\left(\dfrac{s + t}{2}\right) \cos\left(\dfrac{s - t}{2}\right) \qquad \cos s - \cos t = -2 \operatorname{sen}\left(\dfrac{s + t}{2}\right) \operatorname{sen}\left(\dfrac{s - t}{2}\right)$

Algumas Fórmulas de Redução

$\operatorname{sen}(-x) = -\operatorname{sen} x$	$\cos(-x) = \cos x$	$\operatorname{tg}(-x) = -\operatorname{tg} x$
$\operatorname{sen}(\tfrac{1}{2}\pi - x) = \cos x$	$\cos(\tfrac{1}{2}\pi - x) = \operatorname{sen} x$	$\operatorname{tg}(\tfrac{1}{2}\pi - x) = \operatorname{cotg} x$
$\operatorname{sen}(\tfrac{1}{2}\pi + x) = \cos x$	$\cos(\tfrac{1}{2}\pi + x) = -\operatorname{sen} x$	$\operatorname{tg}(\tfrac{1}{2}\pi + x) = -\operatorname{cotg} x$
$\operatorname{sen}(\pi - x) = \operatorname{sen} x$	$\cos(\pi - x) = -\cos x$	$\operatorname{tg}(\pi - x) = -\operatorname{tg} x$

Lei dos Senos e dos Co-senos

a, b e c representam as medidas dos lados de um triângulo: α, β e γ representam as medidas dos ângulos opostos aos lados de medidas a, b, e c, respectivamente.

$\dfrac{a}{\operatorname{sen} \alpha} = \dfrac{b}{\operatorname{sen} \beta} = \dfrac{c}{\operatorname{sen} \gamma} \qquad c^2 = a^2 + b^2 - 2ab \cos \gamma$

TABELA DE DERIVADAS

1. $D_x(u^n) = nu^{n-1} D_x u$
2. $D_x(u + v) = D_x u + D_x v$
3. $D_x(uv) = u D_x v + v D_x u$
4. $D_x\left(\frac{u}{v}\right) = \frac{v D_x u - u D_x v}{v^2}$
5. $D_x(e^u) = e^u D_x u$
6. $D_x(a^u) = a^u \ln a \, D_x u$
7. $D_x(\ln u) = \frac{1}{u} D_x u$
8. $D_x(\text{sen } u) = \cos u \, D_x u$
9. $D_x(\cos u) = -\text{sen } u \, D_x u$
10. $D_x(\text{tg } u) = \sec^2 u \, D_x u$
11. $D_x(\text{cotg } u) = -\text{cosec}^2 u \, D_x u$
12. $D_x(\sec u) = \sec u \, \text{tg } u \, D_x u$
13. $D_x(\text{cosec } u) = -\text{cosec } u \, \text{cotg } u \, D_x u$
14. $D_x(\text{sen}^{-1} u) = \frac{1}{\sqrt{1 - u^2}} D_x u$
15. $D_x(\cos^{-1} u) = \frac{-1}{\sqrt{1 - u^2}} D_x u$
16. $D_x(\text{tg}^{-1} u) = \frac{1}{1 + u^2} D_x u$
17. $D_x(\text{cotg}^{-1} u) = \frac{-1}{1 + u^2} D_x u$
18. $D_x(\sec^{-1} u) = \frac{1}{u\sqrt{u^2 - 1}} D_x u$
19. $D_x(\text{cosec}^{-1} u) = \frac{-1}{u\sqrt{u^2 - 1}} D_x u$
20. $D_x(\text{senh } u) = \cosh u \, D_x u$
21. $D_x(\cosh u) = \text{senh } u \, D_x u$
22. $D_x(\text{tgh } u) = \text{sech}^2 u \, D_x u$
23. $D_x(\text{cotgh } u) = -\text{cosech}^2 u \, D_x u$
24. $D_x(\text{sech } u) = -\text{sech } u \, \text{tgh } u \, D_x u$
25. $D_x(\text{cosech } u) = -\text{cosech } u \, \text{cotg } u \, D_x u$

TABELA DE INTEGRAIS

Algumas Formas Elementares

1. $\int du = u + C$
2. $\int a \, du = au + C$
3. $\int [f(u) + g(u)]du = \int f(u)du + \int g(u)du$
4. $\int u^n \, du = \frac{u^{n+1}}{n + 1} + C \quad (n \neq -1)$
5. $\int \frac{du}{u} = \ln|u| + C$

Formas Racionais Contendo $a + bu$

6. $\int \frac{u \, du}{a + bu} = \frac{1}{b^2}[a + bu - a \ln|a + bu|] + C$
7. $\int \frac{u^2 \, du}{a + bu} = \frac{1}{b^3}\left[\frac{1}{2}(a+bu)^2 - 2a(a+bu) + a^2 \ln|a+bu|\right] + C$
8. $\int \frac{u \, du}{(a + bu)^2} = \frac{1}{b^2}\left[\frac{a}{a + bu} + \ln|a + bu|\right] + C$
9. $\int \frac{u^2 \, du}{(a + bu)^2} = \frac{1}{b^3}\left[a + bu - \frac{a^2}{a + bu} - 2a \ln|a + bu|\right] + C$
10. $\int \frac{u \, du}{(a + bu)^3} = \frac{1}{b^2}\left[\frac{a}{2(a + bu)^2} - \frac{1}{a + bu}\right] + C$
11. $\int \frac{du}{u(a + bu)} = \frac{1}{a} \ln\left|\frac{u}{a + bu}\right| + C$
12. $\int \frac{du}{u^2(a + bu)} = -\frac{1}{au} + \frac{b}{a^2} \ln\left|\frac{a + bu}{u}\right| + C$
13. $\int \frac{du}{u(a + bu)^2} = \frac{1}{a(a + bu)} + \frac{1}{a^2} \ln\left|\frac{u}{a + bu}\right| + C$

Formas Contendo $\sqrt{a + bu}$

14. $\int u\sqrt{a + bu} \, du = \frac{2}{15b^3}(3bu - 2a)(a + bu)^{3/2} + C$
15. $\int u^2\sqrt{a + bu} \, du = \frac{2}{105b^3}(15b^2u^2 - 12abu + 8a^2)(a + bu)^{3/2} + C$
16. $\int u^n\sqrt{a+bu} \, du = \frac{2u^n(a+bu)^{3/2}}{b(2n + 3)} - \frac{2an}{b(2n + 3)} \int u^{n-1}\sqrt{a+bu} \, du$
17. $\int \frac{u \, du}{\sqrt{a + bu}} = \frac{2}{3b^2}(bu - 2a)\sqrt{a + bu} + C$
18. $\int \frac{u^2 \, du}{\sqrt{a + bu}} = \frac{2}{15b^3}(3b^2u^2 - 4abu + 8a^2)\sqrt{a + bu} + C$
19. $\int \frac{u^n \, du}{\sqrt{a + bu}} = \frac{2u^n\sqrt{a + bu}}{b(2n + 1)} - \frac{2an}{b(2n + 1)} \int \frac{u^{n-1} \, du}{\sqrt{a + bu}}$

20. $$\int \frac{du}{u\sqrt{a+bu}} = \begin{cases} \dfrac{1}{\sqrt{a}} \ln\left|\dfrac{\sqrt{a+bu}-\sqrt{a}}{\sqrt{a+bu}+\sqrt{a}}\right| + C & \text{se } a > 0 \\ \dfrac{2}{\sqrt{-a}} \operatorname{tg}^{-1}\sqrt{\dfrac{a+bu}{-a}} + C & \text{se } a < 0 \end{cases}$$

21. $$\int \frac{du}{u^n\sqrt{a+bu}} = -\frac{\sqrt{a+bu}}{a(n-1)u^{n-1}} - \frac{a(2n-3)}{2a(n-1)} \int \frac{du}{u^{n-1}\sqrt{a+bu}}$$

22. $$\int \frac{\sqrt{a+bu}\,du}{u} = 2\sqrt{a+bu} + a\int \frac{du}{u\sqrt{a+bu}}$$

23. $$\int \frac{\sqrt{a+bu}\,du}{u^n} = -\frac{(a+bu)^{3/2}}{a(n-1)u^{n-1}} - \frac{b(2n-5)}{2a(n-1)} \int \frac{\sqrt{a+bu}\,du}{u^{n-1}}$$

Formas Contendo $a^2 \pm u^2$

24. $$\int \frac{du}{a^2+u^2} = \frac{1}{a} \operatorname{tg}^{-1}\frac{u}{a} + C$$

25. $$\int \frac{du}{a^2-u^2} = \frac{1}{2a} \ln\left|\frac{u+a}{u-a}\right| + C = \begin{cases} \dfrac{1}{a} \operatorname{tgh}^{-1}\dfrac{u}{a} + C & \text{se } |u| < a \\ \dfrac{1}{a} \operatorname{cotg}^{-1}\dfrac{u}{a} + C & \text{se } |u| > a \end{cases}$$

26. $$\int \frac{du}{u^2-a^2} = \frac{1}{2a} \ln\left|\frac{u-a}{u+a}\right| + C = \begin{cases} -\dfrac{1}{a} \operatorname{tgh}^{-1}\dfrac{u}{a} + C & \text{se } |u| < a \\ -\dfrac{1}{a} \operatorname{cotg}^{-1}\dfrac{u}{a} + C & \text{se } |u| > a \end{cases}$$

Formas Contendo $\sqrt{u^2 \pm a^2}$

Nas fórmulas de 27 a 38, podemos substituir

$\ln(u + \sqrt{u^2 + a^2})$ por $\operatorname{senh}^{-1}\frac{u}{a}$

$\ln|u + \sqrt{u^2 - a^2}|$ por $\cosh^{-1}\frac{u}{a}$

$\ln\left|\frac{a + \sqrt{u^2 + a^2}}{u}\right|$ por $\operatorname{senh}^{-1}\frac{a}{u}$

27. $$\int \frac{du}{\sqrt{u^2 \pm a^2}} = \ln|u + \sqrt{u^2 \pm a^2}| + C$$

28. $$\int \sqrt{u^2 \pm a^2}\,du = \frac{u}{2}\sqrt{u^2 \pm a^2} \pm \frac{a^2}{2} \ln|u + \sqrt{u^2 \pm a^2}| + C$$

29. $$\int u^2\sqrt{u^2 \pm a^2}\,du = \frac{u}{8}(2u^2 \pm a^2)\sqrt{u^2 \pm a^2} - \frac{a^4}{8} \ln|u + \sqrt{u^2 \pm a^2}| + C$$

30. $$\int \frac{\sqrt{u^2 + a^2}\,du}{u} = \sqrt{u^2 + a^2} - a \ln\left|\frac{a + \sqrt{u^2 + a^2}}{u}\right| + C$$

31. $$\int \frac{\sqrt{u^2 - a^2}\,du}{u} = \sqrt{u^2 - a^2} - a \sec^{-1}\frac{u}{a} + C$$

32. $$\int \frac{\sqrt{u^2 \pm a^2}\,du}{u^2} = -\frac{\sqrt{u^2 \pm a^2}}{u} + \ln|u + \sqrt{u^2 \pm a^2}| + C$$

33. $$\int \frac{u^2\,du}{\sqrt{u^2 \pm a^2}} = \frac{u}{2}\sqrt{u^2 \pm a^2} - \frac{\pm a^2}{2} \ln|u + \sqrt{u^2 \pm a^2}| + C$$

34. $$\int \frac{du}{u\sqrt{u^2 + a^2}} = -\frac{1}{a} \ln\left|\frac{a + \sqrt{u^2 + a^2}}{u}\right| + C$$

35. $$\int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a} \sec^{-1}\frac{u}{a} + C$$

36. $$\int \frac{du}{u^2\sqrt{u^2 \pm a^2}} = -\frac{\sqrt{u^2 \pm a^2}}{\pm a^2 u} + C$$

37. $$\int (u^2 \pm a^2)^{3/2}\,du = \frac{u}{8}(2u^2 \pm 5a^2)\sqrt{u^2 \pm a^2} + \frac{3a^4}{8} \ln|u + \sqrt{u^2 \pm a^2}| + C$$

38. $$\int \frac{du}{(u^2 \pm a^2)^{3/2}} = \frac{u}{\pm a^2\sqrt{u^2 \pm a^2}} + C$$

Formas Contendo $\sqrt{a^2 - u^2}$

39. $$\int \frac{du}{\sqrt{a^2 - u^2}} = \operatorname{sen}^{-1}\frac{u}{a} + C$$

40. $$\int \sqrt{a^2 - u^2}\,du = \frac{u}{2}\sqrt{a^2 - u^2} + \frac{a^2}{2} \operatorname{sen}^{-1}\frac{u}{a} + C$$

41. $$\int u^2\sqrt{a^2 - u^2}\,du = \frac{u}{8}(2u^2 - a^2)\sqrt{a^2 - u^2} + \frac{a^4}{8} \operatorname{sen}^{-1}\frac{u}{a} + C$$

42. $$\int \frac{\sqrt{a^2 - u^2}\,du}{u} = \sqrt{a^2 - u^2} - a \ln\left|\frac{a + \sqrt{a^2 - u^2}}{u}\right| + C = \sqrt{a^2 - u^2} - a \cosh^{-1}\frac{a}{u} + C$$

43. $$\int \frac{\sqrt{a^2 - u^2}\,du}{u^2} = -\frac{\sqrt{a^2 - u^2}}{u} - \operatorname{sen}^{-1}\frac{u}{a} + C$$

44. $\int \frac{u^2\,du}{\sqrt{a^2-u^2}} = -\frac{u}{2}\sqrt{a^2-u^2} + \frac{a^2}{2}\operatorname{sen}^{-1}\frac{u}{a} + C$

45. $\int \frac{du}{u\sqrt{a^2-u^2}} = -\frac{1}{a}\ln\left|\frac{a+\sqrt{a^2-u^2}}{u}\right| + C$
$= -\frac{1}{a}\cosh^{-1}\frac{a}{u} + C$

46. $\int \frac{du}{u^2\sqrt{a^2-u^2}} = -\frac{\sqrt{a^2-u^2}}{a^2u} + C$

47. $\int (a^2-u^2)^{3/2}\,du = -\frac{u}{8}(2u^2-5a^2)\sqrt{a^2-u^2} + \frac{3a^4}{8}\operatorname{sen}^{-1}\frac{u}{a} + C$

48. $\frac{du}{(a^2-u^2)^{3/2}} = \frac{u}{a^2\sqrt{a^2-u^2}} + C$

Formas Contendo $2au - u^2$

49. $\int \sqrt{2au-u^2}\,du = \frac{u-a}{2}\sqrt{2au-u^2} + \frac{a^2}{2}\cos^{-1}\left(1-\frac{u}{a}\right) + C$

50. $\int u\sqrt{2au-u^2}\,du = \frac{2u^2-au-3a^2}{6}\sqrt{2au-u^2} + \frac{a^3}{2}\cos^{-1}\left(1-\frac{u}{a}\right) + C$

51. $\int \frac{\sqrt{2au-u^2}\,du}{u} = \sqrt{2au-u^2} + a\cos^{-1}\left(1-\frac{u}{a}\right) + C$

52. $\int \frac{\sqrt{2au-u^2}\,du}{u^2} = -\frac{2\sqrt{2au-u^2}}{u} - \cos^{-1}\left(1-\frac{u}{a}\right) + C$

53. $\int \frac{du}{\sqrt{2au-u^2}} = \cos^{-1}\left(1-\frac{u}{a}\right) + C$

54. $\int \frac{u\,du}{\sqrt{2au-u^2}} = -\sqrt{2au-u^2} + a\cos^{-1}\left(1-\frac{u}{a}\right) + C$

55. $\int \frac{u^2\,du}{\sqrt{2au-u^2}} = -\frac{(u+3a)}{2}\sqrt{2au-u^2} + \frac{3a^2}{2}\cos^{-1}\left(1-\frac{u}{a}\right) + C$

56. $\int \frac{du}{u\sqrt{2au-u^2}} = -\frac{\sqrt{2au-u^2}}{au} + C$

57. $\int \frac{du}{(2au-u^2)^{3/2}} = \frac{u-a}{a^2\sqrt{2au-u^2}} + C$

58. $\int \frac{u\,du}{(2au-u^2)^{3/2}} = \frac{u}{a\sqrt{2au-u^2}} + C$

Formas Contendo Funções Trigonométricas

59. $\int \operatorname{sen} u\,du = -\cos u + C$

60. $\int \cos u\,du = \operatorname{sen} u + C$

61. $\int \operatorname{tg} u\,du = \ln|\sec u| + C$

62. $\int \operatorname{cotg} u\,du = \ln|\operatorname{sen} u| + C$

63. $\int \sec u\,du = \ln|\sec u + \operatorname{tg} u| + C = \ln\left|\operatorname{tg}\left(\tfrac{1}{4}\pi + \tfrac{1}{2}u\right)\right| + C$

64. $\int \operatorname{cosec} u\,du = \ln|\operatorname{cosec} u - \operatorname{cotg} u| + C = \ln\left|\operatorname{tg}\tfrac{1}{2}u\right| + C$

65. $\int \sec^2 u\,du = \operatorname{tg} u + C$

66. $\int \operatorname{cosec}^2 u\,du = -\operatorname{cotg} u + C$

67. $\int \sec u \operatorname{tg} u\,du = \sec u + C$

68. $\int \operatorname{cosec} u \operatorname{cotg} u\,du = -\operatorname{cosec} u + C$

69. $\int \operatorname{sen}^2 u\,du = \tfrac{1}{2}u - \tfrac{1}{4}\operatorname{sen} 2u + C$

70. $\int \cos^2 u\,du = \tfrac{1}{2}u + \tfrac{1}{4}\operatorname{sen} 2u + C$

71. $\int \operatorname{tg}^2 u\,du = \operatorname{tg} u - u + C$

72. $\int \operatorname{cotg}^2 u\,du = -\operatorname{cotg} u - u + C$

73. $\int \operatorname{sen}^n u\,du = -\frac{1}{n}\operatorname{sen}^{n-1} u\cos u + \frac{n-1}{n}\int \operatorname{sen}^{n-2} u\,du$

74. $\int \cos^n u\,du = \frac{1}{n}\cos^{n-1} u\operatorname{sen} u + \frac{n-1}{n}\int \cos^{n-2} u\,du$

75. $\int \operatorname{tg}^n u\,du = \frac{1}{n-1}\operatorname{tg}^{n-1} u - \int \operatorname{tg}^{n-2} u\,du$

76. $\int \operatorname{cotg}^n u\,du = -\frac{1}{n-1}\operatorname{cotg}^{n-1} u - \int \operatorname{cotg}^{n-2} u\,du$

77. $\int \sec^n u\,du = \frac{1}{n-1}\sec^{n-2} u\operatorname{tg} u + \frac{n-2}{n-1}\int \sec^{n-2} u\,du$

78. $\int \operatorname{cosec}^n u\,du = -\frac{1}{n-1}\operatorname{cosec}^{n-2} u\operatorname{cotg} u + \frac{n-2}{n-1}\int \operatorname{cosec}^{n-2} u\,du$

79. $\int \operatorname{sen} mu \operatorname{sen} nu\,du = -\frac{\operatorname{sen}(m+n)u}{2(m+n)} + \frac{\operatorname{sen}(m-n)u}{2(m-n)} + C$

80. $\int \cos mu \cos nu\,du = \frac{\operatorname{sen}(m+n)u}{2(m+n)} + \frac{\operatorname{sen}(m-n)u}{2(m-n)} + C$

81. $\int \operatorname{sen} mu \cos nu\,du = -\frac{\cos(m+n)u}{2(m+n)} - \frac{\cos(m-n)u}{2(m-n)} + C$

82. $\int u \operatorname{sen} u\,du = \operatorname{sen} u - u\cos u + C$

83. $\int u \cos u \, du = \cos u + u \operatorname{sen} u + C$

84. $\int u^2 \operatorname{sen} u \, du = 2u \operatorname{sen} u + (2 - u^2) \cos u + C$

85. $\int u^2 \cos u \, du = 2u \cos u + (u^2 - 2) \operatorname{sen} u + C$

86. $\int u^n \operatorname{sen} u \, du = -u^n \cos u + n \int u^{n-1} \cos u \, du$

87. $\int u^n \cos u \, du = u^n \operatorname{sen} u - n \int u^{n-1} \operatorname{sen} u \, du$

88. $$\int \operatorname{sen}^m u \cos^n u \, du = -\frac{\operatorname{sen}^{m-1} u \cos^{n+1} u}{m+n} + \frac{m-1}{m+n} \int \operatorname{sen}^{m-2} u \cos^n u \, du$$
$$= \frac{\operatorname{sen}^{m+1} u \cos^{n-1} u}{m+n} + \frac{n-1}{m+n} \int \operatorname{sen}^m u \cos^{n-2} u \, du$$

Formas Contendo Funções Trigonométricas Inversas

89. $\int \operatorname{sen}^{-1} u \, du = u \operatorname{sen}^{-1} u + \sqrt{1 - u^2} + C$

90. $\int \cos^{-1} u \, du = u \cos^{-1} u - \sqrt{1 - u^2} + C$

91. $\int \operatorname{tg}^{-1} u \, du = u \operatorname{tg}^{-1} u - \ln \sqrt{1 + u^2} + C$

92. $\int \operatorname{cotg}^{-1} u \, du = u \operatorname{cotg}^{-1} u + \ln \sqrt{1 + u^2} + C$

93. $$\int \sec^{-1} u \, du = u \sec^{-1} u - \ln|u + \sqrt{u^2 - 1}| + C$$
$$= u \sec^{-1} u - \cosh^{-1} u + C$$

94. $$\int \operatorname{cosec}^{-1} u \, du = u \operatorname{cosec}^{-1} u + \ln|u + \sqrt{u^2 - 1}| + C$$
$$= u \operatorname{cosec}^{-1} u + \cosh^{-1} u + C$$

Formas Contendo Funções Exponenciais e Logarítmicas

95. $\int e^u \, du = e^u + C$

96. $\int a^u \, du = \frac{a^u}{\ln a} + C$

97. $\int ue^u \, du = e^u(u - 1) + C$

98. $\int u^n e^u \, du = u^n e^u - n \int u^{n-1} e^u \, du$

99. $\int u^n a^u \, du = \frac{u^n a^u}{\ln a} - \frac{n}{\ln a} \int u^{n-1} a^u \, du + C$

100. $\int \frac{e^u \, du}{u^n} = -\frac{e^u}{(n-1)u^{n-1}} + \frac{1}{n-1} \int \frac{e^u \, du}{u^{n-1}}$

101. $\int \frac{a^u \, du}{u^n} = -\frac{a^u}{(n-1)u^{n-1}} + \frac{\ln a}{n-1} \int \frac{a^u \, du}{u^{n-1}}$

102. $\int \ln u \, du = u \ln u - u + C$

103. $\int u^n \ln u \, du = \frac{u^{n+1}}{(n+1)^2} [(n+1) \ln u - 1] + C$

104. $\int \frac{du}{u \ln u} = \ln|\ln u| + C$

105. $\int e^{au} \operatorname{sen} nu \, du = \frac{e^{au}}{a^2 + n^2} (a \operatorname{sen} nu - n \cos nu) + C$

106. $\int e^{au} \cos nu \, du = \frac{e^{au}}{a^2 + n^2} (a \cos nu + n \operatorname{sen} nu) + C$

Formas Contendo Funções Hiperbólicas

107. $\int \operatorname{senh} u \, du = \cosh u + C$

108. $\int \cosh u \, du = \operatorname{senh} u + C$

109. $\int \operatorname{tgh} u \, du = \ln|\cosh u| + C$

110. $\int \operatorname{cotgh} u \, du = \ln|\operatorname{senh} u| + C$

111. $\int \operatorname{sech} u \, du = \operatorname{tg}^{-1}(\operatorname{senh} u) + C$

112. $\int \operatorname{cosech} u \, du = \ln|\operatorname{tgh} \frac{1}{2}u| + C$

113. $\int \operatorname{sech}^2 u \, du = \operatorname{tgh} u + C$

114. $\int \operatorname{cosech}^2 u \, du = -\operatorname{cotgh} u + C$

115. $\int \operatorname{sech} u \operatorname{tgh} u \, du = -\operatorname{sech} u + C$

116. $\int \operatorname{cosech} u \operatorname{cotgh} u \, du = -\operatorname{cosech} u + C$

117. $\int \operatorname{senh}^2 u \, du = \frac{1}{4} \operatorname{senh} 2u - \frac{1}{2}u + C$

118. $\int \cosh^2 u \, du = \frac{1}{4} \operatorname{senh} 2u + \frac{1}{2}u + C$

119. $\int \operatorname{tgh}^2 u \, du = u - \operatorname{tgh} u + C$

120. $\int \operatorname{cotgh}^2 u \, du = u - \operatorname{cotgh} u + C$

121. $\int u \operatorname{senh} u \, du = u \cosh u - \operatorname{senh} u + C$

122. $\int u \cosh u \, du = u \operatorname{senh} u - \cosh u + C$

123. $\int e^{au} \operatorname{senh} nu \, du = \frac{e^{au}}{a^2 - n^2} (a \operatorname{senh} nu - n \cosh nu) + C$

124. $\int e^{au} \cosh nu \, du = \frac{e^{au}}{a^2 - n^2} (a \cosh nu - n \operatorname{senh} nu) + C$