

Tabella delle primitive di alcune funzioni d'uso frequente

1. $\int x^n dx = \frac{1}{n+1} x^{n+1} + c, (n \neq -1).$

In particolare:

$\int dx = x + c; \quad \int x dx = \frac{1}{2} x^2 + c;$

$\int \sqrt{x} dx = \frac{2}{3} \sqrt{x^3} + c;$

$\int \frac{1}{\sqrt{x}} dx = 2\sqrt{x} + c;$

$\int \frac{1}{x^2} dx = -\frac{1}{x} + c.$

2. $\int \frac{1}{x} dx = \ln|x| + c.$

3. $\int \operatorname{sen} x dx = -\operatorname{cos} x + c.$

4. $\int \operatorname{cos} x dx = \operatorname{sen} x + c.$

In particolare:

3'. $\int \operatorname{sen} ax dx = -\frac{1}{a} \operatorname{cos} ax + c.$

4'. $\int \operatorname{cos} ax dx = \frac{1}{a} \operatorname{sen} ax + c.$

5. $\int \frac{1}{\operatorname{cos}^2 x} dx = \operatorname{tg} x + c.$

6. $\int \frac{1}{\operatorname{sen}^2 x} dx = -\operatorname{ctg} x + c.$

7. $\int \operatorname{tg} x dx = -\ln|\operatorname{cos} x| + c.$

8. $\int \operatorname{ctg} x dx = \ln|\operatorname{sen} x| + c.$

9. $\int e^x dx = e^x + c.$

10. $\int a^x dx = \frac{1}{\ln a} a^x + c.$

11. $\int \frac{1}{\sqrt{1-x^2}} dx = \operatorname{arcsen} x + c.$

12. $\int \frac{1}{1+x^2} dx = \operatorname{arctg} x + c.$

13. $\int \frac{1}{\sqrt{a^2-x^2}} dx = \operatorname{arcsen} \frac{x}{|a|} + c.$

14. $\int \frac{1}{a^2+x^2} dx = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + c, (a \neq 0).$

15. $\int \frac{x}{\sqrt{x^2+a}} dx = \sqrt{x^2+a} + c.$

16. $\int \frac{x}{\sqrt{a-x^2}} dx = -\sqrt{a-x^2} + c, (a > 0).$

17. $\int \frac{1}{a^2-x^2} dx = \frac{1}{2a} \ln \left| \frac{a+x}{a-x} \right| + c.$

18. $\int \frac{1}{x^2-a^2} dx = \frac{1}{2a} \ln \left| \frac{x+a}{x-a} \right| + c.$

19. $\int \frac{1}{\sqrt{x^2 \pm a^2}} dx = \ln|x + \sqrt{x^2 \pm a^2}| + c.$

20. $\int \frac{1}{\operatorname{sen} x} dx = \ln \left| \operatorname{tg} \frac{x}{2} \right| + c =$
 $= \ln|\operatorname{cosec} x - \operatorname{ctg} x| + c.$

21. $\int \frac{1}{\operatorname{cos} x} dx = \ln \left| \operatorname{tg} \left(\frac{x}{2} + \frac{\pi}{4} \right) \right| + c =$
 $= \ln|\operatorname{sec} x + \operatorname{tg} x| + c.$

22. $\int \operatorname{sen}^2 x dx = \frac{1}{2} (x - \operatorname{sen} x \operatorname{cos} x) + c.$

23. $\int \operatorname{cos}^2 x dx = \frac{1}{2} (x + \operatorname{sen} x \operatorname{cos} x) + c$

24. $\int \sqrt{a^2-x^2} dx = \frac{1}{2} \left(a^2 \operatorname{arcsen} \frac{x}{a} + \right.$
 $\left. + x\sqrt{a^2-x^2} \right) + c.$

25. $\int \operatorname{sh} x dx = \operatorname{ch} x + c.$

26. $\int \operatorname{ch} x dx = \operatorname{sh} x + c.$

27. $\int \frac{1}{\operatorname{ch}^2 x} dx = \operatorname{th} x + c.$

28. $\int \frac{1}{\operatorname{sh}^2 x} dx = -\operatorname{cth} x + c.$