Funciones hiperbólicas

$\sinh\, x = \frac{e^x - e^{-x}}{2}$

$\cosh\, x = \frac{e^x + e^{-x}}{2}$

$\tanh\, x = \frac{\sinh\, x}{\cosh\, x}$

y además $\operatorname{cosech}\, x = \frac{1}{\sinh\, x}$, $\operatorname{sech}\, x = \frac{1}{\cosh\, x}$ y $\operatorname{cotanh}\, x = \frac{1}{\tanh\, x}$.

Se tienen las siguientes igualdades:

$\cosh^2\, x - \sinh^2\, x = 1$, $\operatorname{sech}^2\, x + \tanh^2\, x = 1$ y $\operatorname{cotanh}^2\, x - \operatorname{cosech}^2\, x = 1$.

Primitivas

1. $\int dx = x + C$

2. $\int x^n dx = \frac{x^{n+1}}{n+1} + C$ si $n \in \mathbb{R} \setminus \{-1\}$.

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

4. $\int t^n\, dt = \frac{t^{n+1}}{n+1} + C$ si $n \in \mathbb{R} \setminus \{-1\}$.

5. $\int \frac{1}{t}\, dt = \ln|t| + C$.

6. $\int e^t\, dt = e^t + C$.

7. $\int a^t\, dt = \frac{a^t}{\ln a} + C$.

8. $\int \cos t\, dt = \sin t + C$.

9. $\int \sin t\, dt = -\cos t dt$.

10. $\int \frac{1}{\cos^2 t}\, dt = \int \sec^2 t\, dt = \int (1 + \tan^2 t)\, dt = \tan t + C$.

11. $\int \frac{1}{\sin^2 t}\, dt = \int \operatorname{cosec}^2 t\, dt = -\cot t + C$.

12. $\int \frac{1}{\sqrt{1-t^2}}\, dt = \arcsin t + C$.

13. $\int \frac{1}{1+t^2}\, dt = \arctan t + C$.

14. $\int \cosh t\, dt = \sinh t + C$.

15. $\int \sinh t\, dt = \cosh t dt$.

16. $\int \frac{1}{\cosh^2 t}\, dt = \tanh t + C$.

17. $\int \frac{1}{\sinh^2 t}\, dt = \coth t + C$.

18. $\int \frac{1}{\sqrt{1+t^2}}\, dt = \operatorname{arcsinh} t + C$.

19. $\int \frac{1}{\sqrt{t^2-1}}\, dt = \operatorname{arccosh} t + C$.