

Regla de L'hôpital

~~1. $\lim_{x \rightarrow 0} \frac{e^{\frac{1}{x}}}{x^2} \neq 0$~~

2. $\lim_{x \rightarrow 0} (1 - 2x)^{\frac{1}{x}} = \frac{1}{e^2}$

3. $\lim_{x \rightarrow 0} \frac{4(x - \ln(1+x))}{x \ln(1+x)} = 2$

4. $\lim_{x \rightarrow 0} \left(\frac{1}{\ln(1+x)} - \frac{1}{x} \right) = \frac{1}{2}$

5. $\lim_{x \rightarrow 1^+} \left(\frac{2x}{x-1} - \frac{3}{\ln(x)} \right) : \text{No existe}$

6. $\lim_{x \rightarrow 0} (1 + x^2)^{\ln(x)} = 1$

7. $\lim_{x \rightarrow 2} \left(\frac{x}{2} \right)^{\frac{1}{x-2}} = \sqrt{e}$

8. $\lim_{x \rightarrow 1} \frac{\ln(x)}{x-1} = 1$

9. $\lim_{x \rightarrow a} \frac{x^m - a^m}{x^n - a^n} = \frac{m}{n} a^{m-n}$

10. $\lim_{x \rightarrow 1^+} (x-1)^{\ln(x)} = 1$

11. $\lim_{x \rightarrow 0} \frac{e^x - (1 - 2x^2)}{x^3} : \text{No existe.}$

12. $\lim_{x \rightarrow 0} \frac{6^x - 2^x}{x} = \ln 6 - \ln 2$

13. $\lim_{x \rightarrow 2^+} \left(\frac{8}{x^2 - 4} - \frac{x}{x-2} \right) = -\frac{3}{2}$

14. $\lim_{x \rightarrow 0} (x \ln(x)) = 0$

15. $\lim_{x \rightarrow 0} x^x = 1$

$$16. \lim_{x \rightarrow 1} \frac{\ln(x^2)}{x^2 - 1} = 1$$

$$17. \lim_{x \rightarrow 1} \frac{\sqrt{x} - x^2}{\ln(x)} = -\frac{3}{2}$$

$$18. \lim_{x \rightarrow 0} \frac{\ln(\cos(x^2))}{7x^2} = 0$$

$$19. \lim_{x \rightarrow 0^-} \frac{1 - 5\sqrt{-x}}{2\sqrt{-x} - 1} = -\frac{\ln(5)}{\ln(2)}$$

$$20. \lim_{x \rightarrow 1^+} \frac{\sqrt{3 - 2x^2} - \sqrt{x^3 - x + 1}}{\ln(x)} = -3$$

$$21. \lim_{x \rightarrow 0} \frac{\ln(x + h) - \ln(h)}{x} = \frac{1}{h}$$

$$22. \lim_{x \rightarrow 0} \frac{3^x - 5^x}{7^x - 2^x} = \frac{\ln 5}{\ln 2} - \frac{\ln 3}{\ln 2}$$

$$23. \lim_{x \rightarrow 0} \frac{\sqrt[n]{1+x} - 1}{\left(\frac{x}{n}\right)} = 1$$

$$24. \lim_{x \rightarrow 0} \left(\frac{1}{2x} - \frac{1}{x(e^x + 1)} \right) = \frac{1}{4}$$

$$25. \lim_{x \rightarrow 1^+} (x - 1) \ln(x - 1) = 0$$

$$26. \lim_{x \rightarrow 0} \left(x e^{\frac{1}{x}} - x \right) : \text{No existe}$$

$$27. \lim_{x \rightarrow 1} \frac{4^{\ln(x)} - x^2}{\ln(x)} = \ln(4) - 2$$

$$28. \lim_{x \rightarrow 0} \frac{\sqrt{1+x} - 1 - \frac{x}{2}}{x^2} = -\frac{1}{8}$$