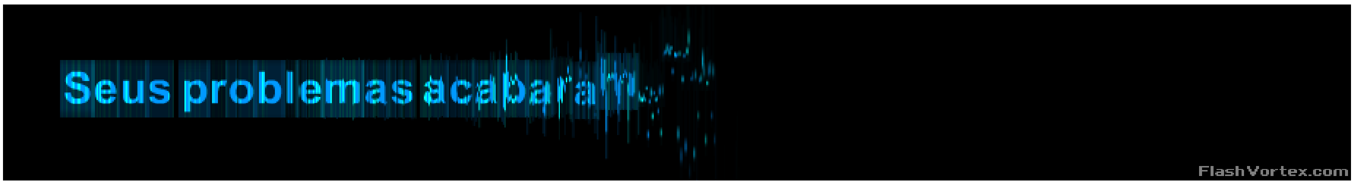


# CALCULO PRONTO

Facilidade para quem precisa de dicas para resolução de calculos matemáticos



## LIMITES TRIGONOMÉTRICOS

*Exercicio _1*

$$\lim_{x\to 0}\frac{sen2x}{x}=$$

$$\lim_{x\to 0}\frac{sen2x}{x}.\frac{2}{2}=\lim_{x\to 0}\frac{2sen2x}{2x}=$$

$$=2\lim_{x\to 0}\frac{sen2x}{2x}=2.1=2$$

*Exercicio _2*

$$\lim_{x\to 0}\frac{sen3x}{5x}=$$

$$\lim_{x\to 0}\frac{sen3x}{5x}.\frac{\frac{3}{5}}{\frac{3}{5}}=\frac{\frac{3}{5}sen3x}{\frac{3}{\not 5}\not 5x}=$$

$$\lim_{x\to 0}\frac{\frac{3}{5}sen3x}{3x}=\frac{3}{5}\lim_{x\to 0}\frac{sen3x}{3x}=\frac{3}{5}.1=\frac{3}{5}$$

============================================================

$$\lim_{x\to 0}\frac{x}{\sqrt{1+senx}-\sqrt{1-senx}}=$$

$$\lim_{x\to 0}\frac{x}{\sqrt{1+senx}-\sqrt{1-senx}}.\frac{\sqrt{1+senx}+\sqrt{1-senx}}{\sqrt{1+senx}+\sqrt{1-senx}}=$$

$$\lim_{x\to 0}\frac{x(\sqrt{1+senx}+\sqrt{1-senx})}{\left(\sqrt{1+senx}-\sqrt{1-senx}\right).\left(\sqrt{1+senx}+\sqrt{1-senx}\right)}=$$

$$\lim_{x\to 0}\frac{x(\sqrt{1+senx}+\sqrt{1-senx})}{(1+senx)-(1-senx)}=\lim_{x\to 0}\frac{x(\sqrt{1+senx}+\sqrt{1-senx})}{\cancel{1}+senx-\cancel{1}+senx}$$

$$\lim_{x\to 0}\frac{x(\sqrt{1+senx}+\sqrt{1-senx})}{2.senx}\,multiplica\_por\ {}^{1}\!/_{x}=$$

$$\lim_{x\to 0}\frac{\dfrac{\cancel{x}(\sqrt{1+senx}+\sqrt{1-senx})}{\cancel{x}}}{\dfrac{2.senx}{x}}=$$

$$\lim_{x\to 0}\frac{(\sqrt{1+senx}+\sqrt{1-senx})}{\dfrac{2.senx}{x}}=\frac{(\sqrt{1+sen0}+\sqrt{1-sen0})}{2.\lim\limits_{x\to 0}\dfrac{senx}{x}}=$$

$$=\frac{(\sqrt{1+0}+\sqrt{1-0})}{2.1}=\frac{1+1}{2.1}=\frac{2}{2}=1$$

Usar o limite fundamental e alguns artifícios : $\lim\limits_{x\to 0}\frac{senx}{x}=1$

1. $\lim\limits_{x\to 0}\frac{x}{\operatorname{sen}x}=?$ → $\lim\limits_{x\to 0}\frac{x}{\operatorname{sen}x}=\frac{0}{0}$ , é uma indeterminação.

$$\lim_{x\to 0}\frac{x}{\operatorname{sen}x}=\lim_{x\to 0}\frac{1}{\dfrac{\operatorname{sen}x}{x}}=\frac{1}{\lim\limits_{x\to 0}\dfrac{\operatorname{sen}x}{x}}=1 \quad \text{logo} \quad \lim_{x\to 0}\frac{x}{\operatorname{sen}x}=1$$

2. $\lim\limits_{x\to 0}\frac{\operatorname{sen}4x}{x}=?$ → $\lim\limits_{x\to 0}\frac{\operatorname{sen}4x}{x}=\frac{0}{0}$ → $\lim\limits_{x\to 0}4.\frac{\operatorname{sen}4x}{4x}=4.\lim\limits_{y\to 0}\frac{\operatorname{sen}y}{y}=4.1=4$ logo $\lim\limits_{x\to 0}\frac{\operatorname{sen}4x}{x}=4$

3. $\lim\limits_{x\to 0}\frac{\operatorname{sen}5x}{2x}=?$ → $\lim\limits_{x\to 0}\frac{5}{2}.\frac{\operatorname{sen}5x}{5x}=\lim\limits_{y\to 0}\frac{5}{2}.\frac{\operatorname{sen}y}{y}=\frac{5}{2}$ logo $\lim\limits_{x\to 0}\frac{\operatorname{sen}5x}{2x}=\frac{5}{2}$

4. $\lim\limits_{x\to 0}\frac{\operatorname{sen}mx}{nx}=?$ → $\lim\limits_{x\to 0}\frac{\operatorname{sen}mx}{nx}=\lim\limits_{x\to 0}\frac{m}{n}.\frac{\operatorname{sen}mx}{mx}=\frac{m}{n}.\lim\limits_{y\to 0}\frac{\operatorname{sen}y}{y}=\frac{m}{n}.1=\frac{m}{n}$ logo $\lim\limits_{x\to 0}\frac{\operatorname{sen}mx}{nx}=\frac{m}{n}$

5. $\lim\limits_{x\to 0}\frac{\operatorname{sen}3x}{\operatorname{sen}2x}=?$ → $\lim\limits_{x\to 0}\frac{\operatorname{sen}3x}{\operatorname{sen}2x}=\lim\limits_{x\to 0}\frac{\dfrac{\operatorname{sen}3x}{x}}{\dfrac{\operatorname{sen}2x}{x}}=\lim\limits_{x\to 0}\frac{3.\dfrac{\operatorname{sen}3x}{3x}}{2.\dfrac{\operatorname{sen}2x}{2x}}=.\frac{\lim\limits_{x\to 0}\dfrac{\operatorname{sen}3x}{3x}}{\lim\limits_{x\to 0}\dfrac{\operatorname{sen}2x}{2x}}=\frac{3}{2}.\frac{\lim\limits_{y\to 0}\dfrac{\operatorname{sen}y}{y}}{\lim\limits_{t\to 0}\dfrac{\operatorname{sen}t}{t}}=\frac{3}{2}.1=\frac{3}{2}$ logo $\lim\limits_{x\to 0}\frac{\operatorname{sen}3x}{\operatorname{sen}2x}=\frac{3}{2}$

6. $\lim\limits_{x\to 0}\frac{senmx}{sennx}=?$ → $\lim\limits_{x\to 0}\frac{\operatorname{sen}mx}{\operatorname{sen}nx}=\lim\limits_{x\to 0}\frac{\dfrac{\operatorname{sen}mx}{x}}{\dfrac{\operatorname{sen}nx}{x}}=\lim\limits_{x\to 0}\frac{m.\dfrac{\operatorname{sen}mx}{mx}}{n.\dfrac{\operatorname{sen}nx}{nx}}=\lim\limits_{x\to 0}\frac{m}{n}.\frac{\dfrac{\operatorname{sen}mx}{mx}}{\dfrac{\operatorname{sen}nx}{nx}}=\frac{m}{n}$ Logo $\lim\limits_{x\to 0}\frac{senmx}{sennx}=\frac{m}{n}$

7. $\lim\limits_{x\to 0}\frac{tgx}{x}=?$ → $\lim\limits_{x\to 0}\frac{tgx}{x}=\frac{0}{0}$ → $\lim\limits_{x\to 0}\frac{tgx}{x}=\lim\limits_{x\to 0}\frac{\dfrac{\operatorname{sen}x}{\cos x}}{x}=\lim\limits_{x\to 0}\frac{\operatorname{sen}x}{\cos x}.\frac{1}{x}=$ $\lim\limits_{x\to 0}\frac{\operatorname{sen}x}{x}.\frac{1}{\cos x}=\lim\limits_{x\to 0}\frac{\operatorname{sen}x}{x}.\lim\limits_{x\to 0}\frac{1}{\cos x}=1$ Logo $\lim\limits_{x\to 0}\frac{tgx}{x}=1$

8. $\lim\limits_{a\to 1}\frac{tg(a^2-1)}{a^2-1}=?$ → $\lim\limits_{a\to 1}\frac{tg(a^2-1)}{a^2-1}=\frac{0}{0}$ →Fazendo $t=a^2-1, \begin{cases} x\to 1 \\ t\to 0 \end{cases}$ → $\lim\limits_{t\to 0}\frac{tg(t)}{t}=1$

logo $\lim\limits_{a\to 1}\frac{tg(a^2-1)}{a^2-1}=1$

9. $\lim_{x\to 0}\frac{x-\text{sen }3x}{x+\text{sen }2x}=?$ → $\lim_{x\to 0}\frac{x-\text{sen }3x}{x+\text{sen }2x}=\frac{0}{0}$ → $f(x)=\frac{x-\text{sen }3x}{x+\text{sen }2x}=\frac{x.\left(1-\frac{\text{sen }3x}{x}\right)}{x.\left(1+\frac{\text{sen }5x}{x}\right)}=$

$\frac{x.\left(1-3.\frac{\text{sen }3x}{3.x}\right)}{x.\left(1+5.\frac{\text{sen }5x}{5.x}\right)}=\frac{1-3.\frac{\text{sen }3x}{3.x}}{1+5.\frac{\text{sen }5x}{5.x}}$ → $\lim_{x\to 0}\frac{1-3.\frac{\text{sen }3x}{3.x}}{1+5.\frac{\text{sen }5x}{5.x}}=\frac{1-3}{1+5}=\frac{-2}{6}=-\frac{1}{3}$ logo

$\lim_{x\to 0}\frac{x-\text{sen }3x}{x+\text{sen }2x}=-\frac{1}{3}$

10. $\lim_{x\to 0}\frac{tgx-\text{sen }x}{x^3}=?$ → $\lim_{x\to 0}\frac{tgx-\text{sen }x}{x^3}=\lim_{x\to 0}\frac{\text{sen }x}{x}.\frac{1}{\cos x}.\frac{\text{sen}^2 x}{x^2}.\frac{1}{1+\cos x}=\frac{1}{2}$

$f(x)=\frac{tgx-\text{sen }x}{x^3}=\frac{\frac{\text{sen }x}{\cos x}-\text{sen }x}{x^3}=\frac{\frac{\text{sen }x-\text{sen }x.\cos x}{\cos x}}{x^3}=\frac{\text{sen }x.(1-\cos x)}{x^3.\cos x}=\frac{\text{sen }x}{x}.\frac{1}{x^2}.\frac{1-\cos x}{\cos x}=$

$\frac{\text{sen }x}{x}.\frac{1}{x^2}.\frac{1-\cos x}{\cos x}.\frac{1+\cos x}{1+\cos x}=\frac{\text{sen }x}{x}.\frac{1}{\cos x}.\frac{1-\cos^2 x}{x^2}.\frac{1}{1+\cos x}=\frac{\text{sen }x}{x}.\frac{1}{\cos x}.\frac{\text{sen}^2 x}{x^2}.\frac{1}{1+\cos x}$

Logo $\lim_{x\to 0}\frac{tgx-\text{sen }x}{x^3}=\frac{1}{2}$

11. $\lim_{x\to 0}\frac{\sqrt{1+tgx}-\sqrt{1+\text{sen }x}}{x^3}=?$ → $\lim_{x\to 0}\frac{tgx-\text{sen }x}{x^3}.\frac{1}{\sqrt{1+tgx}+\sqrt{1+\text{sen }x}}=$

$\lim_{x\to 0}\frac{\text{sen }x}{x}.\frac{1}{\cos x}.\frac{\text{sen}^2 x}{x^2}.\frac{1}{1+\cos x}.\frac{1}{\sqrt{1+tgx}+\sqrt{1+\text{sen }x}}=1.\frac{1}{1}.\frac{1}{1}.\frac{1}{2}.\frac{1}{2}=\frac{1}{4}$

$f(x)=\frac{\sqrt{1+tgx}-\sqrt{1+senx}}{x^3}=\frac{1+tgx-1-\text{sen }x}{x^3}.\frac{1}{\sqrt{1+tgx}+\sqrt{1+\text{sen }x}}=\frac{tgx-\text{sen }x}{x^3}.\frac{1}{\sqrt{1+tgx}+\sqrt{1+\text{sen }x}}$

$\lim_{x\to 0}\frac{\sqrt{1+tgx}-\sqrt{1+\text{sen }x}}{x^3}=\frac{1}{4}$

12. $\lim_{x\to a}\frac{\text{sen }x-\text{sen }a}{x-a}=?$ → $\lim_{x\to a}\frac{\text{sen }x-\text{sen }a}{x-a}=\lim_{x\to a}\frac{2\text{sen}\left(\frac{x-a}{2}\right).\cos\left(\frac{x+a}{2}\right)}{2.\left(\frac{x-a}{2}\right)}=$

$\lim_{x\to a}\frac{2\text{sen}(\frac{x-a}{2})}{2.\left(\frac{x-a}{2}\right)}.\frac{.\cos\left(\frac{x+a}{2}\right)}{1}=\cos a$  Logo $\lim_{x\to a}\frac{\text{sen }x-\text{sen }a}{x-a}=$ cosa

13. $\lim_{a\to 0}\frac{\text{sen}(x+a)-\text{sen }x}{a}=?$ → $\lim_{a\to 0}\frac{\text{sen}(x+a)-\text{sen }x}{a}=\lim_{a\to a}\frac{2\text{sen}\left(\frac{x+a-x}{2}\right)}{2.\left(\frac{x-a}{2}\right)}.\frac{.\cos\left(\frac{x+a+x}{2}\right)}{1}=$

$\lim_{a\to a}\frac{2\text{sen}\left(\frac{a}{2}\right)}{2.\left(\frac{a}{2}\right)}.\frac{.\cos\left(\frac{2x+a}{2}\right)}{1}=\cos x$  Logo $\lim_{a\to 0}\frac{\text{sen}(x+a)-\text{sen }x}{a}=$cosx

14. $\lim_{a\to 0}\frac{\cos(x+a)-\cos x}{a}=?$ → $\lim_{a\to 0}\frac{\cos(x+a)-\cos x}{a}=\lim_{a\to 0}\frac{-2\text{sen}\left(\frac{x+a+x}{2}\right).\text{sen}\left(\frac{x-a-x}{2}\right)}{a}=$

$\lim_{a\to 0}\frac{-2.\text{sen}\left(\frac{2x+a}{2}\right).\text{sen}\left(\frac{-a}{2}\right)}{2.\left(\frac{-a}{2}\right)}=\lim_{a\to 0}-\text{sen}\left(\frac{2x+a}{2}\right).\frac{\text{sen}\left(\frac{-a}{2}\right)}{\left(\frac{-a}{2}\right)}=-\text{sen }x$ Logo

$\lim_{a\to 0}\frac{\cos(x+a)-\cos x}{a}=$-senx

17. $\lim_{x\to\frac{\pi}{4}} \frac{1-\cot gx}{1-tgx} = ?$ → $\lim_{x\to\frac{\pi}{4}} \frac{1-\cot gx}{1-tgx} = \lim_{x\to\frac{\pi}{4}} \frac{1-\frac{1}{tgx}}{1-tgx} = \lim_{x\to\frac{\pi}{4}} \frac{\frac{tgx-1}{tgx}}{1-tgx} =$

$\lim_{x\to\frac{\pi}{4}} \frac{\frac{-1.(1-tgx)}{tgx}}{1-tgx} = \lim_{x\to\frac{\pi}{4}} -\frac{1}{tgx} = -1$ Logo $\lim_{x\to\frac{\pi}{4}} \frac{1-\cot gx}{1-tgx} = -1$

18. $\lim_{x\to0} \frac{1-\cos^3 x}{\text{sen}^2 x} = ?$ → $\lim_{x\to0} \frac{1-\cos^3 x}{\text{sen}^2 x} = \lim_{x\to0} \frac{(1-\cos x).(1+\cos x+\cos^2 x)}{1-\cos^2 x} =$

$\lim_{x\to0} \frac{(1-\cos x).(1+\cos x+\cos^2 x)}{(1-\cos x).(1+\cos x)} = \lim_{x\to0} \frac{1+\cos x+\cos^2 x}{1+\cos x} = \frac{3}{2}$ Logo $\lim_{x\to0} \frac{1-\cos^3 x}{\text{sen}^2 x} = \frac{3}{2}$

19. $\lim_{x\to\frac{\pi}{3}} \frac{\text{sen}\,3x}{1-2.\cos x} = ?$ → $\lim_{x\to\frac{\pi}{3}} \frac{\text{sen}\,3x}{1-2.\cos x} = \lim_{x\to\frac{\pi}{3}} -\frac{\text{sen}\,x.(1+2.\cos x)}{1} = -\sqrt{3}$

$f(x) = \frac{\text{sen}\,3x}{1-2.\cos x} = \frac{\text{sen}(x+2x)}{1-2.\cos x} = \frac{\text{sen}\,x.\cos 2x+\text{sen}\,2x.\cos x}{1-2.\cos x} = \frac{\text{sen}\,x.(2\cos^2 x-1)+2.\text{sen}\,x.\cos x.\cos x}{1-2.\cos x} =$
$\frac{\text{sen}\,x.[(2\cos^2 x-1)+2\cos^2 x]}{1-2.\cos x} = \frac{\text{sen}\,x.[4\cos^2 x-1]}{1-2.\cos x} = -\frac{\text{sen}\,x.(1-2.cox).(1+2.cox)}{1-2.\cos x} = -\frac{\text{sen}\,x.(1+2.\cos x)}{1}$

20. $\lim_{x\to\pi/4} \frac{\text{sen}\,x-\cos x}{1-tgx} = ?$ → $\lim_{x\to\pi/4} \frac{\text{sen}\,x-\cos x}{1-tgx} = \lim_{x\to\pi/4} (-\cos x) = -\frac{\sqrt{2}}{2}$

$f(x) = \frac{\text{sen}\,x-\cos x}{1-tgx} = \frac{\text{sen}\,x-\cos x}{1-\frac{\text{sen}\,x}{\cos x}} = \frac{\text{sen}\,x-\cos x}{1-\frac{\text{sen}\,x}{\cos x}} = \frac{\text{sen}\,x-\cos x}{\frac{\cos x-\text{sen}\,x}{\cos x}} = \frac{\text{sen}\,x-\cos x}{\frac{-1.(\text{sen}\,x-\cos x)}{\cos x}} =$

$-\frac{\text{sen}\,x-\cos x}{1}.\frac{\cos x}{\cos x-\text{sen}\,x} = -\cos x$

21. $\lim_{x\to3}(3-x).\cos\sec(\pi x) = ?$ → $\lim_{x\to3}(3-x).\cos\sec(\pi x) = 0.\infty$

$f(x) = (3-x).\cos\sec(\pi x) = (3-x).\frac{1}{\text{sen}(\pi x)} = \frac{3-x}{\text{sen}(\pi-\pi x)} = \frac{3-x}{\text{sen}(3\pi-\pi x)} = \frac{1}{\frac{\pi.\text{sen}(3\pi-\pi x)}{\pi.(3-x)}} =$

$\frac{1}{\frac{\pi.\text{sen}(3\pi-\pi x)}{(3\pi-\pi x)}}$ → $\lim_{x\to3}(3-x).\cos\sec(\pi x) = \lim_{x\to3} \frac{1}{\frac{\pi.\text{sen}(3\pi-\pi x)}{(3\pi-\pi x)}} = \frac{1}{\pi}$

22. $\lim_{x\to\infty} x.\text{sen}(\frac{1}{x}) = ?$ → $\lim_{x\to\infty} x.\text{sen}(\frac{1}{x}) = \infty.0$

$\lim_{x\to\infty} \frac{\text{sen}\left(\frac{1}{x}\right)}{\frac{1}{x}} = \lim_{t\to0} \frac{\text{sen}\,t}{t} = 1$ → Fazendo $t = \frac{1}{x}$ $\begin{cases} x\to+\infty \\ t\to0 \end{cases}$

23. $\lim_{x\to\pi/6} \frac{2.\text{sen}^2 x+\text{sen}\,x-1}{2.\text{sen}^2 x-3.\text{sen}\,x+1} = ?$ → $\lim_{x\to\pi/6} \frac{2.\text{sen}^2 x+\text{sen}\,x-1}{2.\text{sen}^2 x-3.\text{sen}\,x+1} = \lim_{x\to\pi/6} \frac{1+\text{sen}\,x}{-1+\text{sen}\,x} = \frac{1+\text{sen}\frac{\pi}{6}}{-1+\text{sen}\frac{\pi}{6}} =$

$\frac{1+\frac{1}{2}}{-1+\frac{1}{2}} = -3$ → $f(x) = \frac{2.\text{sen}^2 x+\text{sen}\,x-1}{2.\text{sen}^2 x-3.\text{sen}\,x+1} = \frac{\left(\text{sen}\,x-\frac{1}{2}\right).(\text{sen}\,x+1)}{\left(\text{sen}\,x-\frac{1}{2}\right).(\text{sen}\,x-1)} = \frac{(\text{sen}\,x+1)}{(\text{sen}\,x-1)} = \frac{1+\text{sen}\,x}{-1+\text{sen}\,x}$

24. $\lim_{x\to1}(1-x).tg\left(\frac{\pi x}{2}\right) = ?$ → $\lim_{x\to1}(1-x).tg\left(\frac{\pi x}{2}\right) = 0.\infty$ → $f(x) = (1-x).tg\left(\frac{\pi x}{2}\right) =$

$(1-x).\cot g\left(\frac{\pi}{2}-\frac{\pi x}{2}\right) = \frac{(1-x)}{tg\left(\frac{\pi}{2}-\frac{\pi x}{2}\right)} = \frac{\frac{\pi}{2}.(1-x).\frac{2}{\pi}}{tg\left(\frac{\pi}{2}-\frac{\pi x}{2}\right)} = \frac{\frac{2}{\pi}}{\frac{tg\left(\frac{\pi}{2}-\frac{\pi x}{2}\right)}{\frac{\pi}{2}.(1-x)}} = \frac{\frac{2}{\pi}}{\frac{tg\left(\frac{\pi}{2}-\frac{\pi x}{2}\right)}{\left(\frac{\pi}{2}-\frac{\pi x}{2}\right)}}$ →

$\lim_{x\to1}(1-x).tg\left(\frac{\pi x}{2}\right) = \lim_{x\to1} \frac{\frac{2}{\pi}}{\frac{tg\left(\frac{\pi}{2}-\frac{\pi x}{2}\right)}{\left(\frac{\pi}{2}-\frac{\pi x}{2}\right)}} = \frac{\frac{2}{\pi}}{\lim_{t\to0}\frac{tg(t)}{t}} = \frac{2}{\pi}$ Fazendo uma mudança de variável,

temos : $t = \frac{\pi}{2} - \frac{\pi x}{2}$ $\begin{cases} x\to1 \\ t\to0 \end{cases}$

$$28.\ \lim_{x\to \pi/4}\frac{\text{sen } 2x-\cos 2x-1}{\cos x-\text{sen } x}=?\ \rightarrow\ \lim_{x\to \pi/4}\frac{\text{sen } 2x-\cos 2x-1}{\cos x-\text{sen } x}=\lim_{x\to \pi/4}(-2.\cos x)=-2.\cos\frac{\pi}{4}=-2.\frac{\sqrt{2}}{2}=-\sqrt{2}$$

$$f(x)=\frac{\text{sen } 2x-\cos 2x-1}{\cos x-\text{sen } x}=\frac{2.\text{sen } x\cos x-(2\cos^2 x-1)-1}{\cos x-\text{sen } x}=\frac{2.\text{sen } x.\cos x-2\cos^2 x+1-1}{\cos x-\text{sen } x}=$$

$$\frac{2.\text{sen } x.\cos x-2\cos^2 x}{\cos x-\text{sen } x}=\frac{-2.\cos x.(\cos x-\text{sen } x)}{\cos x-\text{sen } x}=-2.\cos x$$

$$29.\ \lim_{x\to 1}\frac{\text{sen}(x-1)}{\sqrt{2x-1}-1}=?\ \rightarrow\ \lim_{x\to 1}\frac{\text{sen}(x-1)}{\sqrt{2x-1}-1}=\lim_{x\to 1}\frac{1}{2}.\frac{\text{sen}(x-1)}{(x-1)}.\frac{\sqrt{2x-1}+1}{1}=1$$

$$f(x)=\frac{\text{sen}(x-1)}{\sqrt{2x-1}-1}=\frac{\text{sen}(x-1)}{\sqrt{2x-1}-1}.\frac{\sqrt{2x-1}+1}{\sqrt{2x-1}+1}=\frac{\text{sen}(x-1)}{2x-1-1}.\frac{\sqrt{2x-1}+1}{1}=\frac{\text{sen}(x-1)}{2.(x-1)}.\frac{\sqrt{2x-1}+1}{1}=$$

$$\frac{1}{2}.\frac{\text{sen}(x-1)}{(x-1)}.\frac{\sqrt{2x-1}+1}{1}$$



Página inicial

Assinar: Postagens (Atom)