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$$\lim_{x\to 0}\left(\frac{2\operatorname{sen}x+\cos x}{x^2-3x+1}\right)^{\frac{x\log 3+\operatorname{sen}^2 x}{4x^2}} =$$

$$\frac{x\log 3+\operatorname{sen}^2 x}{4x^2}\log\left[1+\left(\frac{2\operatorname{sen}x+\cos x}{x^3-3x+1}-1\right)\right]$$

$$\lim_{x\to 0} e^{\;=}$$

$$\frac{x\log 3+\operatorname{sen}^2 x}{4x^2}\cdot\left(\frac{2\operatorname{sen}x+\cos x}{x^3-3x+1}-1\right)\frac{\log\left[1+\left(\frac{2\operatorname{sen}x+\cos x}{x^3-3x+1}-1\right)\right]}{\frac{2\operatorname{sen}x+\cos x}{x^3-3x+1}-1}$$

$$\lim_{x\to 0} e^{\;=}$$

$$\frac{x\left(\log 3+\frac{\operatorname{sen}^2 x}{x}\right)}{4x^2}\cdot\frac{\operatorname{sen}x+\cos x-x^3+3x-1}{x^3-3x+1}\cdot\frac{\log\left[1+\frac{2\operatorname{sen}x+\cos x}{x^3-3x+1}-1\right]}{\frac{2\operatorname{sen}x+\cos x}{x^3-3x+1}-1}$$

$$=\lim_{x\to 0} e^{\;=}$$

$$\frac{\log 3+\frac{\operatorname{sen}^2 x}{x}}{4}\cdot\frac{\frac{\operatorname{sen}x}{x}+\frac{\cos x-1}{x}-x^2+3}{x^3-3x+1}\cdot\frac{\log\left[1+\frac{2\operatorname{sen}x+\cos x}{x^3-3x+1}-1\right]}{\frac{2\operatorname{sen}x+\cos x}{x^3-3x+1}-1}$$

$$=\lim_{x\to 0} e^{\;=}$$

$$\frac{\log 3+0}{4}\cdot\frac{4}{1}\cdot 1 \qquad \log 3$$

$$=\lim_{x\to 0} e \qquad = e = 3$$

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$$\lim_{x\to 1}\left(\frac{2x+5}{x-1+\operatorname{sen}^2(x-1)}\right)^{\pi-4\operatorname{arctg}x} =$$

$$(\pi-4\operatorname{arctg}x)\log\frac{2x+5}{x-1+\operatorname{sen}^2(x-1)}$$

$$=\lim_{x\to 1} e^{\;=}$$

$$\frac{\pi-4\operatorname{arctg}x}{\frac{2x+5}{x-1+\operatorname{sen}^2(x-1)}}\cdot\frac{2x+5}{x-1+\operatorname{sen}^2(x-1)}\log\frac{2x+5}{x-1+\operatorname{sen}^2(x-1)} =$$

$$=\lim_{x\to 1} e$$

$$\frac{\pi-4\operatorname{arctg}x}{2x+5}\cdot\frac{(x-1)+\operatorname{sen}^2(x-1)}{x-1+\operatorname{sen}^2(x-1)}\cdot\frac{2x+5}{(x-1)+\operatorname{sen}^2(x-1)}\log\frac{2x+5}{(x-1)+\operatorname{sen}^2(x-1)} =$$

$$=\lim_{x\to 1} e$$

$$\frac{0}{7}\cdot 0\cdot 0 \qquad 0$$

$$= e \qquad = e = 1$$