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(1) $\lim_{x \to 2} \frac{\sqrt{5x^2+7x+2}-6}{x^3-7x^2+3x+14} \cdot \frac{\sqrt{5x^2+7x+2}+6}{\sqrt{5x^2+7x+2}+6} =$

$\lim_{x \to 2} \frac{5x^2+7x+2-36}{(x^3-7x+3x+14)\cdot(5x^2+7x+2+6)} =$

$\lim_{x \to 2} \frac{5x^2+7x-34}{(x^3-7x+3x+14)\cdot(\sqrt{5x^2+7x+2}+6)} =$

$\lim_{x \to 2} \frac{(x-2)\cdot(5x+17)}{(x-2)\cdot(x^2-5x-7)\cdot(\sqrt{5x^2+7x+2}+6} =$

$\lim_{x \to 2} \frac{5x+17}{(x^2-5x-7)\cdot(\sqrt{5\cdot 2^2+7\cdot 2+2}+6)} =$

$\lim_{x \to 2} \frac{5\cdot 2+17}{(2^2-5\cdot 2-7)\cdot(\sqrt{5\cdot 2^2+7\cdot 2+2}+6)} =$

$\lim_{x \to 2} \frac{27}{(-13)\cdot(\sqrt{36}+6)} =$

$\lim_{x \to 2} \frac{27}{(-13)\cdot 12} = \frac{27}{-156} \rightarrow \boxed{\frac{-9}{52}}$

* Resposta: $\frac{-9}{52}$

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② $\lim_{x \to -\infty} \left(\frac{11x - 29}{11x + 6} \right)^{-\frac{22x}{7}}$

$$\lim_{x \to -\infty} \left[\frac{\frac{11x}{11x} - \frac{29}{11x}}{\frac{11x}{11x} + \frac{6}{11x}} \right]^{-\frac{22x}{7}} =$$

$$\lim_{x \to -\infty} \left[\left(\frac{1 - \frac{29}{11}\left(\frac{1}{x}\right)}{1 + \frac{6}{11}\left(\frac{1}{x}\right)} \right)^{x} \right]^{-\frac{22}{7}} =$$

$$\left[\frac{\lim_{x \to -\infty} \left(1 - \frac{29}{11}\left(\frac{1}{x}\right)\right)^{x}}{\lim_{x \to -\infty} \left(1 + \frac{6}{11}\left(\frac{1}{x}\right)\right)^{x}} \right]^{-\frac{22}{7}} =$$

$$\left[\frac{e^{-\frac{29}{11}}}{e^{\frac{6}{11}}} \right]^{-\frac{22}{7}} \rightsquigarrow \left(e^{-\frac{35}{11}} \right)^{-\frac{22}{7}} = \boxed{e^{10}}$$

* Resposta: e^{10}

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③ $\lim_{x \to 0} \frac{\sec 6x - 1}{x^2}$

$\lim_{x \to 0} \left(\frac{1 - \cos 6x}{x^2 \cdot \cos 6x} \right) =$

$\lim_{x \to 0} \left[\frac{1 - \cos 6x}{x^2 \cdot \cos 6x} \left(\frac{1 + \cos 6x}{1 + \cos 6x} \right) \right] =$

$\lim_{x \to 0} \left(\frac{\operatorname{sen}^2 6x}{x^2 \cdot \cos 6x (1 + \cos 6x)} \right) =$

$\lim_{x \to 0} \left(\frac{\operatorname{sen} 6x}{x} \right) \cdot \left(\frac{\operatorname{sen} 6x}{x} \right) \cdot \left[\frac{1}{\cos 6x (1 + \cos 6x)} \right] =$

$\lim_{x \to 0} = 6 \cdot 6 \cdot \left(\frac{1}{1 \cdot (1+1)} \right) = \frac{36}{2} \rightarrow \boxed{18}$

* Resposta: 18

Att;