

Lista 04

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① Calculate the limits:

$$a) \lim_{x \rightarrow \infty} \frac{5x^3 + x^2 + 2x}{3x^3 - 2x^2 + 1} = \frac{5}{3}.$$

$$b) \lim_{x \rightarrow \infty} \frac{5x^2 + x + 2}{3x^3 - 2x^2 + 1} = 0.$$

$$c) \lim_{x \rightarrow -\infty} e^{5x-3} = 0.$$

$$d) \lim_{x \rightarrow -\infty} \arctan(x^2) = \frac{\pi}{2}.$$

$$e) \lim_{x \rightarrow \infty} \frac{7x^3 - 7x^2}{x^2 - 1} = -\infty.$$

$$f) \lim_{x \rightarrow \infty} \frac{\sqrt{x^2 + 2x + 1}}{x - 2} = -1.$$

② Encontre as assíntotas horizontais caso existam:

$$\textcircled{a} \quad f(x) = \frac{x^2 - 1}{7x^3 - 7x^2} \rightsquigarrow \text{Resp.: } y = 0.$$

$$\textcircled{b} \quad f(x) = \frac{x^2 + x - 6}{2x^2 - 18} \rightsquigarrow \text{Resp.: } y = 1/2.$$