a) $\lim_{x \to +\infty} 7x^2$

$7 \left(\lim x \right)^2 \longrightarrow 7(+\infty)^2 \longrightarrow \boxed{+\infty}$

b) $\lim_{x \to +\infty} (5x^4 + 3x - 7)$

$\lim_{x \to +\infty} x^4 \left(\frac{5x^4}{x^4} + \frac{3x}{x^4 x^3} - \frac{7}{x^4} \right) \longrightarrow x^4 \left(5 + \frac{3}{x^3} - \frac{7}{x^4} \right)$

$5 \cdot (+\infty)^4 = \boxed{+\infty}$

c) $\lim_{x \to +\infty} \frac{7x^2 - 2x + 4}{2x^2 + x + 1}$

$\lim_{x \to +\infty} \frac{x^2 \left(7 - \frac{2x}{x^2} + \frac{4}{x^2} \right)}{x^2 \left(2 + \frac{x}{x^2} + \frac{1}{x^2} \right)} \longrightarrow \boxed{\frac{7}{2}}$

d) $\lim_{x \to +\infty} \frac{6x^5 + 3x^2 + 8}{2x^7 - 4x^4 - 3}$

$\frac{2x - 3 + 3}{4x^2 - 24x + 9 + 6x - 9 + 9}$

Play Cálculo 6

1) $y = 2 \cdot (x^2 + 1)$

$y' = 0 \cdot (x^2+1) + 2 \cdot (2x + 0)$

$y' = 2(2x) = \boxed{4x}$

2) $y = x \cdot (x^2 + 1)$

$y' = 1 \cdot (x^2 + 1) + x \cdot 2x + 0$

$y' = x^2 + 1 + 2x^2$

$y' = 3x^2 + 1$

4) $y = \dfrac{x + x^2}{x - 1} \rightarrow y' = \dfrac{(x + x^2)' \cdot (x-1) - (x+x^2)(x-1)'}{(x-1)^2}$

$y' = \dfrac{(1 + 2x)(x-1) - (x+x^2)(1-0)}{x^2 - (-1)x - 1^2}$

$y' = \dfrac{x - 1 + 2x^2 - 2x - x - x^2}{x^2 + x - 1} \rightarrow \dfrac{x^2 - 2x - 1}{x^2 - x - 1} = \dfrac{4 - 4 - 1}{4 - 2 - 1} = \dfrac{-1}{1}$