$Limits\ of\ Rational\ Functions$: $In\ Exercises\ 13-22,\ find\ the\ limit\ of\ each\ rational\ function$
$a)\ as\ x \to \infty \quad b)\ x \to -\infty$
$(hass\ et\ al.,\ 2018,\ p.\ 94)$

(E.18.)

$$h(x) = \frac{9x^4+x}{2x^4+5x^2-x+6}$$

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$$= \lim_{x \to \infty} \frac{9x^4+x}{2x^4+5x^2-x+6}$$

$$= \lim_{x \to \infty} \frac{\frac{9x^4}{xx^4}+\frac{x}{x^4}}{\frac{2x^4}{x^4}+\frac{5x^2}{x^4}-\frac{x}{x^4}+\frac{6}{x^4}}$$

$$= \lim_{x \to \infty} \frac{9+\frac{1}{x^3}}{2+\frac{5}{x^2}-\frac{1}{x^3}+\frac{6}{x^4}}$$

$$= \frac{9}{2}$$

$$= \lim_{x \to -\infty} \frac{9x^4+x}{2x^4+5x^2-x+6}$$

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$$= \frac{9}{2}$$

$$\lim_{x \to \pm\infty} \frac{9x^4+x}{2x^4+5x^2-x+6} = \frac{9}{2}$$

$Referencias$:

$Hass,\ J.,\ Heil,\ C.,\ \&\ Weir,\ M.D.\ (Eds.).\ (2018).\ Thomas'\ calculus\ (Fourteenth\ edition).\ Pearson.$

https://docs.google.com/document/d/1KYcEUR8XzxBr5-aXWSUFFrhs3O4vJKQmTWNoyoRWL3c/edit?usp=sharing