

Ex 1 :

$$1) \lim_{x \rightarrow +\infty} (3x^2 - 4x + 1) = \lim_{x \rightarrow +\infty} 3x^2 = +\infty$$

$$\lim_{x \rightarrow -\infty} (3x^2 - 4x + 1) = \lim_{x \rightarrow -\infty} 3x^2 = +\infty$$

$$\lim_{x \rightarrow +\infty} (x^3 - 2x^2 + 5) = \lim_{x \rightarrow +\infty} x^3 = +\infty$$

$$\lim_{x \rightarrow -\infty} (x^3 - 2x^2 + 5) = \lim_{x \rightarrow -\infty} x^3 = -\infty$$

$$2) \lim_{x \rightarrow +\infty} \left(-\frac{4}{3}x^4\right) = -\infty \quad \lim_{x \rightarrow -\infty} \left(-\frac{4}{3}x^4\right) = -\infty$$

$$\lim_{x \rightarrow +\infty} 6x^3 = +\infty$$

$$\lim_{x \rightarrow -\infty} 6x^3 = -\infty$$

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

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

$$\lim_{x \rightarrow +\infty} \frac{x^3}{x^2} = \lim_{x \rightarrow +\infty} x = +\infty$$

$$\lim_{x \rightarrow -\infty} \frac{x^3}{x^2} = \lim_{x \rightarrow -\infty} x = -\infty$$

$$\lim_{x \rightarrow \pm\infty} \frac{2x^2}{4x^2} = \lim_{x \rightarrow \pm\infty} \frac{2}{4} = \frac{2}{4} = \frac{1}{2}$$