

Ex 1:

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

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

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

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

$$\left[\begin{array}{l} \triangle! \quad \lim_{x \rightarrow +\infty} 3x^2 + \lim_{x \rightarrow +\infty} (-4x + 1) = \\ \quad = +\infty - \infty = ? \end{array} \right]$$

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

$$= -\frac{4}{3} x (+\infty) = -\infty$$

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

$$= -\frac{4}{3} x (+\infty) = -\infty$$

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

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

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

$$= \frac{\lim_{x \rightarrow +\infty} 2}{\lim_{x \rightarrow +\infty} x} = \frac{2}{+\infty} = 0$$

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

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

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

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

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