

Limiti all'infinito

Periodo 3 - UdA 2

Trovare i seguenti limiti (senza specificare il segno se il limite è infinito) equiparandole a rapporti tra monomi e poi svolgendo dettagliatamente i calcoli

$$[1] \quad \lim_{x \rightarrow \infty} \frac{3x^3 + x^2 - x - 2}{5x}$$

$$[2] \quad \lim_{x \rightarrow \infty} \frac{4x^3 - 3x^2 - 3}{x^2 - 2x + 2}$$

$$[3] \quad \lim_{x \rightarrow \infty} \frac{2x^3}{3x^2 - 2x + 5}$$

$$[4] \quad \lim_{x \rightarrow \infty} \frac{2x^3 + x - 3}{3x^3 + x^2 - x + 2}$$

$$[5] \quad \lim_{x \rightarrow \infty} \frac{2x^2 - 5x + 1}{3x^3}$$

$$[6] \quad \lim_{x \rightarrow \infty} \frac{x}{2x^3 + x^2 - x - 3}$$

$$[7] \quad \lim_{x \rightarrow \infty} \frac{5x^2 - 1}{3x^3 + 2x + 4}$$

$$[8] \quad \lim_{x \rightarrow \infty} \frac{5x^2 - 2x - 1}{3x^2}$$

$$[9] \quad \lim_{x \rightarrow \infty} \frac{3x^2}{2x^2 - 5x - 1}$$

SOLUZIONI

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$$1. \quad \frac{3x^3+x^2-x-2}{5x} \approx \frac{3x^3}{5x} = \frac{3x^2}{5} \longrightarrow \frac{3\infty^2}{5} = \infty$$

$$2. \quad \frac{4x^3-3x^2-3}{x^2-2x+2} \approx \frac{4x^3}{x^2} = 4x \longrightarrow 4\infty = \infty$$

$$3. \quad \frac{2x^3}{3x^2-2x+5} \approx \frac{2x^3}{3x^2} = \frac{2x}{3} \longrightarrow \frac{2\infty}{3} = \infty$$

$$4. \quad \frac{2x^3+x-3}{3x^3+x^2-x+2} \approx \frac{2x^3}{3x^3} = \frac{2}{3}$$

$$5. \quad \frac{2x^2-5x+1}{3x^3} \approx \frac{2x^2}{3x^3} = \frac{2}{3x} \longrightarrow \frac{2}{3\infty} = 0$$

$$6. \quad \frac{x}{2x^3+x^2-x-3} \approx \frac{x}{2x^3} = \frac{1}{2x^2} \longrightarrow \frac{1}{2\infty^2} = 0$$

$$7. \quad \frac{5x^2-1}{3x^3+2x+4} \approx \frac{5x^2}{3x^3} = \frac{5}{3x} \longrightarrow \frac{5}{3\infty} = 0$$

$$8. \quad \frac{5x^2-2x-1}{3x^2} \approx \frac{5x^2}{3x^2} = \frac{5}{3}$$

$$9. \quad \frac{3x^2}{2x^2-5x-1} \approx \frac{3x^2}{2x^2} = \frac{3}{2}$$