

## ESERCIZI del DIROTTAMENTO

1) Calcolare

$$\lim_{x \rightarrow +\infty} \frac{\sin x - x^2 + 2e^x}{2x - 2x^2 + e^x}, \quad \lim_{x \rightarrow +\infty} \frac{\cos x + x^2 + e^{-x}}{2x - x^2 + e^{-x}}$$

2) Calcolare

$$\lim_{x \rightarrow 0} \frac{(1+x)^{\frac{1}{2}} - 1}{\ln(4x+1)}, \quad \lim_{x \rightarrow 0} \frac{\sin(x^2)}{1 - \cos(2x)}$$

3) Calcolare

$$\lim_{x \rightarrow +\infty} (2x+1) \ln \left( 1 + \frac{2}{2x+1} \right), \quad \lim_{x \rightarrow +\infty} \left( \frac{2x+3}{2x+1} \right)^{3x+1}$$

4) Calcolare

$$\lim_{x \rightarrow 2} \frac{(x-2) \ln(x-1)}{\sin(x^2-4)}, \quad \lim_{x \rightarrow \frac{1}{3}} \frac{1 - \cos(12x-4)}{e^{x-\frac{1}{3}} - 1}$$

5) Calcolare

$$\lim_{x \rightarrow +\infty} \frac{(\sqrt{x^3+x} - \sqrt{x^3})\sqrt{x}}{\sin x}, \quad \lim_{x \rightarrow +\infty} \frac{\cos x}{x^3(\sqrt{x^5+2\sqrt{x}} - \sqrt{x^5+\sqrt{x}})}$$

## RISPOSTE

- 1) 2, -1
- 2)  $\frac{1}{8}$ ,  $\frac{1}{2}$
- 3) 2,  $e^3$
- 4) 0, 0
- 5)  $\cancel{A}$ , 0