ANALISI 1 – ESERCITAZIONE 03/11/2026

Mediante la tecnica delle serie di Taylor, calcolare i seguenti limiti:

a) $\lim_{x \to 0} \frac{x \sin^2 x - x^3}{5x \ln(1+x^4)} =$

b) $\lim_{x \to 0} \frac{\ln(1+2x) - \sin 2x}{x^2} =$

c) $\lim_{x \to 0} \frac{\sin x - x + \frac{x^3}{6}}{x^5} =$

d) $\lim_{x \to 0} \frac{x - \sin x}{e^x - 1 - x - \frac{x^2}{2}} =$

e) $\lim_{x \to 0} \frac{\ln^2(1+x) - \sin^2 x}{1 - e^{-x^2}} =$

f) $\lim_{x \to 0} \frac{2(\tan x - \sin x) - x^3}{x^5} =$

g) $\lim_{x \to 0} \frac{x \arctan(x) + 2\ln(\cos x)}{\sin^2 x - \sin(x^2)} =$

h) $\lim_{x \to 0} \frac{\sin(e^x - 1) - x - \frac{x^2}{2}}{x^4} =$

i) $\lim_{x \to 0} \frac{6x - 2\sin 3x}{\arctan(2x)\arcsin(2x)\tan(2x)} =$

j) $\lim_{x \to 0} \frac{\ln(\cos x) + \ln(e^x - x) - \frac{x^3}{6}}{x^3 \sin x} =$

1) $\lim_{x \to 1} \frac{(x-1)\ln x - \frac{(x-1)^2}{x}}{(e^x - e)^3} =$

2) $\lim_{x \to 0} \frac{\arctan x - x\cos x}{x - \arcsin x} =$

3) $\lim_{x \to 0} \frac{e^{x^2+3x} - e^{2x}}{\sin\left(\frac{\pi}{2}x\right)} =$