LIMITI DI FUNZIONI II

Esercizio 1: Calcolare i limiti:

a) $\lim_{x\to 0} \dfrac{2^x - 1 + \sin x}{\log(x+1)}$

b) $\lim_{x\to 0} \dfrac{e^x - 1 - x}{x^2}$

c) $\lim_{x\to 0^+} \dfrac{\log(\arcsin x)}{e^{1/x}}$

d) $\lim_{x\to \infty} \dfrac{2\,\mathrm{arctg}\, x - \pi}{\log\left(\frac{x+1}{x}\right)}$

e) $\lim_{x\to 0^+} \dfrac{e^x - \cos x}{1 - \sqrt{1+x}}$

f) $\lim_{x\to 0^+} \dfrac{\sin x}{x - \log(x+1)}$

g) $\lim_{x\to \frac{\pi}{2}} \dfrac{1 - \sin x}{(2x - \pi)^2}$

h) $\lim_{x\to \frac{\pi}{4}} \dfrac{\mathrm{tg}\, x - 1}{\sqrt{2}\cos x - 1}$

Esercizio 2: Calcolare i limiti:

a) $\lim_{x\to 1} \left(\dfrac{1}{x(x-1)} - \dfrac{1}{\sin(x-1)} \right)$

b) $\lim_{x\to 0^+} \dfrac{\sqrt{x} - \sqrt{\sin x}}{x}$

c) $\lim_{x\to 0^+} \dfrac{e^{\frac{1}{x}}}{2^{\frac{1}{x^2}}}$

d) $\lim_{x\to 0} \left(\dfrac{1}{x} - \dfrac{1}{\arcsin x} \right)$

e) $\lim_{x\to 0} \dfrac{\cos x - e^x}{x^2 \sin x}$

f) $\lim_{x\to 0} \mathrm{arctg}\left(\dfrac{\sec x - \mathrm{tg}\, x}{x^2 (e^x - 1)^3} \right)$

g) $\lim_{x\to 0^+} \left(\dfrac{x}{1 - \cos x} \right)^{\frac{1}{\log(2^x - 1)}}$

h) $\lim_{x\to 1} \dfrac{\mathrm{arctg}\left(e^{x-1} - x\right)}{(x-1)(\sqrt{x} - 1)}$