

$$17) \lim_{x \rightarrow 0} \frac{\log(1+2x)}{e^{3x}-1} = (\text{LIMITI NOTEVOLI}) = \lim_{x \rightarrow 0} \frac{\left(\frac{\log(1+2x)}{2x} \right)^{2x} \rightarrow 1}{\left(\frac{e^{3x}-1}{3x} \right)^{3x} \rightarrow 1} = \frac{2}{3} \quad (C)$$

$$18) \lim_{x \rightarrow 0} \left(\frac{1}{\sin^2 x} - \cot x \right) = \infty$$

$$19) \lim_{x \rightarrow 1} \frac{x}{\log x} = \frac{1}{0} = \infty$$

$$20) \lim_{x \rightarrow +\infty} \frac{\log\left(2 + \frac{1}{x}\right)}{x} = \frac{\log 2}{+\infty} = 0$$

$$21) \lim_{x \rightarrow 0} \frac{1 - \cos^3 x}{x \sin x \cos x} = \left(\frac{0}{0} \text{ f.i.} \right) = \lim_{x \rightarrow 0} \frac{\frac{(1 - \cos x)(1 + \cos x + \cos^2 x)}{x^2}}{\frac{\sin x \cos x}{x^2}} = \frac{1}{2} \cdot (1 + 1 + 1) = \frac{3}{2}$$

$$22) \lim_{x \rightarrow +\infty} \sqrt{x+1} - \sqrt{x+2} = (\infty - \infty \text{ f.i.}) = \lim_{x \rightarrow +\infty} \frac{(\sqrt{x+1} - \sqrt{x+2})(\sqrt{x+1} + \sqrt{x+2})}{\sqrt{x+1} + \sqrt{x+2}} = \lim_{x \rightarrow +\infty} \frac{x+1 - x-2}{\sqrt{x+1} + \sqrt{x+2}} = \frac{-1}{\infty} = 0$$

$$23) \lim_{x \rightarrow \pm\infty} (x + \sqrt{x^2 - 4}) = \begin{cases} +\infty & x \rightarrow +\infty \\ 0 & x \rightarrow -\infty \end{cases}$$

$x + x\sqrt{1 - 4/x^2} = +\infty$
 $x - x\sqrt{1 - 4/x^2} = x(1 - 1) = 0$

$$24) \lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^{2x} = \text{limite notevole} = \lim_{x \rightarrow \infty} \left[\left(1 + \frac{1}{x}\right)^x \right]^2 = e^2$$

$$25) \lim_{x \rightarrow 0} \frac{x^2}{1 - \cos x} = \lim_{x \rightarrow 0} \frac{1}{\frac{1 - \cos x}{x^2}} = 2$$