

CALCOLO DI LIMITI

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$$6) \lim_{x \rightarrow 2} \log_2 (x^2 + 4) = \log_2 (4 + 4) = \log_2 8 = 3$$

$$17) \lim_{x \rightarrow +\infty} (x+1)e^{2x} = +\infty \cdot e^{+\infty} = +\infty \cdot +\infty = +\infty$$

$$18) \lim_{x \rightarrow 4^+} \frac{4+2x}{16-x^2} = \frac{12}{16-16} = \frac{12}{0^-} = -\infty$$

$$19) \lim_{x \rightarrow 0} (x^2 + 2x + 3) \cdot e^x = 3 \cdot e^0 = 3$$

$$20) \lim_{x \rightarrow 0^+} (x^2 - 1) \cdot \ln x = -1 \cdot \ln 0^+ = (-1)(-\infty) = +\infty$$

$$21) \lim_{x \rightarrow -\infty} (x^2 + \frac{1}{x}) = +\infty + 0 = +\infty$$

$$22) \lim_{x \rightarrow -\infty} (3 + \frac{1}{x} - \frac{1}{x^2}) = 3 + \frac{1}{-\infty} - \frac{1}{\infty} = 3$$

$$23) \lim_{x \rightarrow 5^-} \frac{x}{x-5} = \frac{5}{0^-} = -\infty$$

$$24) \lim_{x \rightarrow 0^+} \left[\left(\frac{1}{x^2} + \frac{1}{x^3} \right) (e^x - 2) \right] = \left(\frac{1}{0^+} + \frac{1}{0^+} \right) (e^0 - 2) = \frac{(+\infty + \infty)(1-2)}{= (+\infty)(-1) = -\infty}$$

$$25) \lim_{x \rightarrow 0} \frac{\sin x + 1}{\cos x} = \frac{\sin 0 + 1}{\cos 0} = \frac{1}{1} = 1$$

$$26) \lim_{x \rightarrow +\infty} x^2(1 - e^x) = +\infty(1 - (+\infty)) = (+\infty)(-\infty) = -\infty$$

$$27) \lim_{x \rightarrow 0^+} \frac{\ln x}{\sin x - 1} = \frac{\ln 0^+}{\sin 0^+ - 1} = \frac{-\infty}{-1} = +\infty$$

$$28) \lim_{x \rightarrow 0^+} \frac{\ln x}{x} = \frac{\ln 0^+}{0^+} = \frac{-\infty}{0^+} = -\infty$$

$$29) \lim_{x \rightarrow 1} \frac{2x^2 - 1}{x^3 + 1} = \frac{2-1}{1+1} = \frac{1}{2}$$

$$30) \lim_{x \rightarrow 4} \frac{\log_2 x - \log_4 x}{\log_x 16} = \frac{\log_2 4 - \log_4 4}{\log_4 16} = \frac{2-1}{2} = \frac{1}{2}$$