

$$26) \lim_{x \rightarrow -3} \left(\frac{\sin x}{x+3} \right)^2 = \left(\frac{\sin(-3)}{0} \right)^2 = +\infty$$

(D)

$$27) \lim_{x \rightarrow 0^+} \frac{1-2\ln x}{1+\ln x} = \left(\ln x = t \quad \frac{1-2t}{1+t} \text{ stesso grado} \right) = -2$$

$$28) \lim_{x \rightarrow -\infty} (x - \sqrt{x^2 + 2x + 3}) = \lim_{x \rightarrow -\infty} x - |x| \sqrt{1 + \frac{2}{x} + \frac{3}{x^2}} = x - x \sqrt{1 + \frac{2}{x} + \frac{3}{x^2}} = -\infty$$

$$29) \lim_{x \rightarrow +\infty} \sqrt{\frac{8x^2+1}{4x^2+x+1}} = (\text{stesso grado}) = \sqrt{\frac{8}{4}} = \sqrt{2}$$

$$30) \lim_{x \rightarrow \infty} \frac{\ln(3x^2+1)}{x^2} = (\text{limite notevole}) = \lim_{x \rightarrow \infty} \frac{\ln(1+3x^2)}{3x^2} = 3$$

$$31) \lim_{x \rightarrow \infty} \frac{\sqrt{x+9} - 3}{x} = \left(\frac{0}{0} \text{ f.i.} \right) = \lim_{x \rightarrow \infty} \frac{(\sqrt{x+9}-3)(\sqrt{x+9}+3)}{x(\sqrt{x+9}+3)} = \lim_{x \rightarrow \infty} \frac{x+9-9}{x(\sqrt{x+9}+3)} = \frac{1}{6}$$

$$32) \lim_{x \rightarrow +\infty} \frac{1-\sqrt{x}}{\sqrt[3]{x}} = \left(\frac{\infty}{\infty} \text{ f.i.} \right) (\text{rapporto gradi}) = -\infty$$

$$33) \lim_{x \rightarrow +\infty} \left(1 + \frac{3}{x} \right)^x = \lim_{x \rightarrow +\infty} \left(1 + \frac{1}{\frac{x}{3}} \right)^x = \lim_{x \rightarrow +\infty} \left[\left(1 + \frac{1}{\frac{x}{3}} \right)^{\frac{x}{3}} \right]^3 = e^3$$

$$34) \lim_{x \rightarrow +\infty} (\sqrt{9x^2+1} - 3x) = (\infty - \infty \text{ f.i.}) = |x| \sqrt{9 + \frac{1}{x^2}} - 3x = 0$$

$$35) \lim_{x \rightarrow -\infty} \frac{1+2^x}{2^x-2} = -\frac{1}{2}$$

$$36) \lim_{x \rightarrow 0} \frac{\sin 4x}{x} = \lim_{x \rightarrow 0} \frac{4 \cdot \sin 4x}{4x} = 4$$

$$37) \lim_{x \rightarrow +\infty} \frac{x-x^2}{2x^2+x+1} = (\text{rapporto gradi}) = -\frac{1}{2}$$

$$38) \lim_{x \rightarrow +\infty} \left(\frac{2x^2}{x^2+1} - \frac{x}{x+1} \right) = (2-1) = 1$$