

## Analisi 1 Esercitazione 9 17-11-2020

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Calcolare il seguente limite:

$$\lim_{x \rightarrow 1} \frac{\log x}{e^{\sqrt{x}} - e} \quad (1)$$

Calcolare i seguenti limiti di successione:

1.

$$\lim_{n \rightarrow +\infty} n^4 \left( \cos \left( \frac{1}{n^2 + 1} \right) - 1 \right) \quad (2)$$

2.

$$\lim_{n \rightarrow +\infty} \log n \sin \left( \frac{n + \pi}{\sqrt{1 + 2 \log^2 n!}} \right) \quad (3)$$

Calcolare i seguenti limiti di funzione:

1.

$$\lim_{x \rightarrow +\infty} \frac{\sin x}{x} \quad (4)$$

2.

$$\lim_{x \rightarrow 0} \frac{x^3 \sin \left( \frac{1}{x} \right)}{e^{x^2} - 1} \quad (5)$$

3.

$$\lim_{x \rightarrow 3} \frac{\log \left( \frac{x}{3} \right)}{\sqrt{x} - \sqrt{3}} \quad (6)$$

4.

$$\lim_{x \rightarrow +\infty} \frac{e^{x^2} + 1}{x^x + 5} \quad (7)$$

5.

$$\lim_{x \rightarrow +\infty} \frac{3^{x^2} - 2}{x^{2x+1} + 1} \quad (8)$$

6.

$$\lim_{x \rightarrow +\infty} \left( e^{\sqrt{x^2+x}} - e^{\sqrt{x^2-1}} \right) \quad (9)$$

7.

$$\lim_{x \rightarrow 0^+} (1 + |\sin x|)^{\frac{1}{x}} \quad (10)$$

8.

$$\lim_{x \rightarrow +\infty} \frac{\log(\sqrt{x} - 1) - \frac{1}{2} \log(x - 1)}{5 - 2 \cos x} \quad (11)$$

9.

$$\lim_{x \rightarrow +\infty} \frac{\sin x}{\sqrt{x + \cos x}} \quad (12)$$

10.

$$\lim_{x \rightarrow +\infty} \frac{\sin x - x}{\cos x + \sqrt{1 + x^2}} \quad (13)$$

11.

$$\lim_{x \rightarrow 0} \frac{2^{3x} - 1}{x} \quad (14)$$

12.

$$\lim_{x \rightarrow +\infty} x \log_{10} \left( 1 + \frac{2}{x} \right) \quad (15)$$

13.

$$\lim_{x \rightarrow 0} (\cos x)^{\frac{1}{x^2}} \quad (16)$$

14.

$$\lim_{x \rightarrow 0} (\cos 2x)^{\frac{1}{\sin^2 x}} \quad (17)$$