

Gradivo 7.knjžice - dodatni zadatci

Izračunajte

1.

$$\lim_{x \rightarrow \infty} \frac{x+1}{\sqrt{x^2+x+1}}$$

2.

$$\lim_{x \rightarrow -\infty} \frac{x+1}{\sqrt{x^2+x+1}}$$

3.

$$\lim_{x \rightarrow \infty} \frac{x+1}{2x + \sqrt{x^2+1}}$$

4.

$$\lim_{x \rightarrow -\infty} \frac{x+1}{2x + \sqrt{x^2+1}}$$

5.

$$\lim_{x \rightarrow -\infty} (x+1 + \sqrt{x^2+x+1})$$

6.

$$\lim_{x \rightarrow \infty} (\operatorname{arch} x - \ln x)$$

7.

$$\lim_{x \rightarrow 1} \frac{x^4 - x}{x^4 - 1}$$

8.

$$\lim_{x \rightarrow -1^+} \frac{x^2 + x}{(x+1)^2}$$

9.

$$\lim_{x \rightarrow 2^+} e^{\frac{1}{2-x}}$$

10. Postoji li

$$\lim_{x \rightarrow 2} \operatorname{arctg} \frac{x-1}{x-2}?$$

Obrazložite !

11. Izračunajte

a)

$$\lim_{x \rightarrow 1^-} \operatorname{th} \frac{x-2}{x-1}$$

b)

$$\lim_{x \rightarrow 1^+} \operatorname{th} \frac{x-2}{x-1}$$

12.

$$\lim_{x \rightarrow 0^+} \operatorname{cth}(x^2 - 2x)$$

13.

$$\lim_{x \rightarrow 2^-} \operatorname{cth}(x^2 - 2x)$$

14.

$$\lim_{x \rightarrow \infty} \operatorname{tg} \frac{\pi(x+1)}{2x}$$

15.

$$\lim_{x \rightarrow 0} \frac{\operatorname{tg}^2(3x)}{\operatorname{tg}^2(5x)}$$

16.

$$\lim_{x \rightarrow 0} \frac{\sin^2(3x) \cdot \cos x}{\sin(2x) \cdot \cos^2(4x)}$$

17.

$$\lim_{x \rightarrow 0} \frac{x}{e^{2x} - 1} \cdot \operatorname{arctg}(e^{-x})$$

18.

$$\lim_{x \rightarrow \infty} \frac{(2x+1) \cdot \sin x}{3x^2 + 1}$$

19.

$$\lim_{x \rightarrow \infty} \frac{2x+1}{\sqrt{x^2 + x + 1} + x} \cdot \operatorname{arctg} x$$

20.

$$\lim_{x \rightarrow \infty} \frac{x^2 + 2}{2x + 1} \cdot \operatorname{arctg} \frac{1}{x}$$

21.

$$\lim_{x \rightarrow \infty} \frac{x^2 + 2}{2x + 1} \cdot \ln \frac{x + 2}{x + 1}$$

22.

$$\lim_{x \rightarrow \infty} \left(\frac{3x + 1}{x + 1} \right)^{\frac{x+1}{2x}}$$

23.

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

24.

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

25.

$$\lim_{x \rightarrow \infty} \left(\frac{4x - 1}{4x + 1} \right)^x$$

26.

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

27.

$$\lim_{x \rightarrow 1} x^{\frac{1}{x-1}}$$

28.

$$\lim_{x \rightarrow 3} (x - 2)^{\frac{x}{x-3}}$$

29. Odredite parametar a tako da funkcija f definirana s $f(x) = \frac{x^4-1}{x^3-1}$ za $x \neq 1$, $f(x) = a$, za $x = 1$, bude neprekinuta.

30. Odredite parametar a tako da funkcija f definirana s $f(x) = \frac{\sin(ax)}{x}$ za $x < 0$, $f(x) = \cos(2x)$, za $x \geq 0$, bude neprekinuta.