

U svakom zadatku dato je više odgovora, a treba zaokružiti tačne odgovore tj. slova ili brojeve ispred tačnih odgovora. U jednom istom zadatku broj tačnih odgovora može biti 0,1,2,3,...,svi. U nekim zadacima ostavljena su prazna mesta za upisivanje odgovora.

- Nacrtati grafik funkcije $f(x) = \sin x$ na intervalu $[0, 2\pi]$ i odrediti nule funkcije. $f(\quad) = 0$.

- Ako je $\lim_{x \rightarrow x_0} f(x) = a$ i $\lim_{x \rightarrow x_0} g(x) = b$ tada je:

1) $\lim_{x \rightarrow x_0} (\alpha f(x) + \beta g(x)) = \alpha \lim_{x \rightarrow x_0} f(x) + \beta \lim_{x \rightarrow x_0} g(x)$ 2) $\lim_{x \rightarrow x_0} (f(x) \cdot g(x)) = \lim_{x \rightarrow x_0} f(x) \cdot \lim_{x \rightarrow x_0} g(x)$

3) $\lim_{x \rightarrow x_0} \frac{f(x)}{g(x)} = \frac{\lim_{x \rightarrow x_0} f(x)}{\lim_{x \rightarrow x_0} g(x)}$, $\lim_{x \rightarrow x_0} f(x) \neq 0$ 4) $\lim_{x \rightarrow x_0} (\alpha f(x) - \beta g(x)) = \alpha \lim_{x \rightarrow x_0} f(x) - \beta \lim_{x \rightarrow x_0} g(x)$

5) $\lim_{x \rightarrow x_0} (f(x) \cdot g(x)) = \lim_{x \rightarrow x_0} f(x) + \lim_{x \rightarrow x_0} g(x)$ 6) $\lim_{x \rightarrow x_0} \frac{f(x)}{g(x)} = \frac{\lim_{x \rightarrow x_0} f(x)}{\lim_{x \rightarrow x_0} g(x)}$, $\lim_{x \rightarrow x_0} g(x) \neq 0$

- Zaokružiti tačne izraze:

1) $\lim_{x \rightarrow \infty} (1 + \frac{1}{x})^x = e$, 2) $\lim_{x \rightarrow 0} (1 + x)^{\frac{1}{x}} = 1$, 3) $\lim_{x \rightarrow \infty} q^x = +\infty$, za $q > 1$ 4) $\lim_{x \rightarrow \infty} (1 + \frac{1}{x})^x = 1$,

5) $\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$, 6) $\lim_{x \rightarrow \infty} \frac{1}{x^\alpha} = +\infty$ za $\alpha < 0$ 7) $\lim_{x \rightarrow \infty} q^x = 0$, za $|q| < 1$ 8) $\lim_{x \rightarrow \infty} q^x = 1$, za $q = 1$

- Zaokruži brojeve ispred **određenih** izraza:

1) " $\infty \cdot \infty$ " 2) " ∞^∞ " 3) " $\frac{\infty}{0}$ " 4) " $\ln \infty$ " 5) " 2^∞ " 6) " 0^∞ " 7) " ∞^0 " 8) " 0^0 " 9) " $\infty + \infty$ " 10) " $\frac{1}{0}$ "
 11) " $\frac{1}{\infty}$ " 12) " $\frac{0}{\infty}$ " 13) " $\ln 0$ " 14) " $\ln 1$ " 15) " 0^0 " 16) " 1^∞ " 17) " $\infty - \infty$ " 18) " $3^{-\infty}$ " 19) " $\frac{\infty}{\infty}$ " 20) " $0 \cdot \infty$ "

- Zaokruži brojeve ispred **neodređenih** izraza:

1) " $\frac{1}{\infty}$ " 2) " $\frac{0}{\infty}$ " 3) " 0^0 " 4) " $\frac{1}{0}$ " 5) " $\frac{1}{\infty}$ " 6) " 1^∞ " 7) " $\frac{0}{0}$ " 8) " $\infty - \infty$ " 9) " $3^{-\infty}$ " 10) " $\frac{\infty}{\infty}$ "
 11) " $0 \cdot \infty$ " 12) " $\ln 0$ " 13) " $\ln 1$ " 14) " $\infty \cdot \infty$ " 15) " ∞^∞ " 16) " $\frac{\infty}{0}$ " 17) " $\ln \infty$ "
 18) " 2^∞ " 19) " 0^∞ " 20) " ∞^0 " 21) " $\infty + \infty$ " 22) " $\frac{1}{0}$ " 23) " $\frac{2}{\infty}$ " 24) " e^∞ "

- Izračunati:

1) $\lim_{x \rightarrow \infty} (1 + \frac{1}{x})^x =$ 2) $\lim_{x \rightarrow 0} (1 + x)^x =$ 3) $\lim_{x \rightarrow e} (1 + \frac{1}{x})^x =$

4) $\lim_{x \rightarrow \frac{\pi}{2}} \frac{\cos x}{x} =$ 5) $\lim_{x \rightarrow \pi} \frac{\sin x}{x} =$ 6) $\lim_{x \rightarrow \infty} (\frac{5}{3})^x =$

7) $\lim_{x \rightarrow \infty} (\frac{1}{4})^x =$ 8) $\lim_{x \rightarrow 1} \frac{x^2 - 1}{x - 1} =$ 9) $\lim_{x \rightarrow \infty} \frac{x - 1}{x^2 - 1} =$

ZADATAK

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

b) $\lim_{x \rightarrow 0} \frac{\sin 2x}{\sqrt{x+1} - 1}$

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