Prezime, ime, br. indeksa: ____________________

U svakom zadatku u kom je dato više odgovora 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.

- Ako je $\lim_{x\to x_0} f(x) = a$, $\lim_{x\to x_0} g(x) = b, g(x) \neq 0, b \neq 0$, $\alpha, \beta, c \in \mathbb{R}$, tada je:

1) $\lim_{x\to x_0} \frac{f(x)}{g(x)} = \frac{b}{a}$ **2)** $\lim_{x\to x_0} (\alpha f(x) - \beta g(x)) = \alpha a - \beta b$ **3)** $\lim_{x\to x_0} (f(x) \cdot g(x)) = \lim_{x\to x_0} f(x) + \lim_{x\to x_0} g(x)$

4) $\lim_{x\to x_0} (f(x) + g(x)) = \lim_{x\to x_0} g(x) + \lim_{x\to x_0} f(x)$ **5)** $\lim_{x\to x_0} \frac{f(x)}{g(x)} = \frac{a}{b}$ **6)** $\lim_{x\to x_0} (c \cdot g(x)) = c \lim_{x\to x_0} f(x)$

7) $\lim_{x\to x_0} (f(x) \cdot g(x)) = \lim_{x\to x_0} f(x) \cdot \lim_{x\to x_0} g(x)$ **8)** $\lim_{x\to x_0} (c \cdot f(x)) = c \cdot a$ **9)** $\lim_{x\to x_0} (c \cdot f(x))^2 = c \lim_{x\to x_0} (f(x))^2$

10) $\lim_{x\to x_0} (\alpha f(x) + \beta g(x)) = \beta \lim_{x\to x_0} f(x) + \alpha \lim_{x\to x_0} g(x)$

- Zaokružiti tačne izraze:

1) $\lim_{x\to\infty} q^x = 1$, za $q = 1$ **2)** $\lim_{x\to\infty} q^x = +\infty$, za $q = 3$ **3)** $\lim_{x\to 0} \frac{\sin x}{x} = 0$, **4)** $\lim_{x\to 0} (1+x)^{\frac{1}{x}} = 1$,

5) $\lim_{x\to\infty} q^x = +\infty$, za $q > 1$ **6)** $\lim_{x\to\infty} q^x = 0$, za $|q| < 1$ **7)** $\lim_{x\to\infty} (1 + \frac{1}{x})^x = e$, **8)** $\lim_{x\to\infty} q^x = 0$, za $|q| \leq 1$

9) $\lim_{x\to 0} (1+x)^x = e$, **10)** $\lim_{x\to 0} \frac{x}{\sin x} = 1$, **11)** $\lim_{x\to\infty} \frac{P(x)}{Q(x)} = 0$, $deg(P) < deg(Q)$

12) $\lim_{x\to\infty} \frac{P(x)}{Q(x)} = 0$, $deg(P) = deg(Q)$ **13)** $\lim_{x\to\infty} \frac{P(x)}{Q(x)} = 0$, $deg(P) > deg(Q)$

- Zaokruži brojeve ispred **neodređenih** izraza:

1) "$\infty - \infty$" **2)** "$\infty \cdot \infty$" **3)** "$\frac{2}{0}$" **4)** "$\frac{0}{-\infty}$" **5)** "0^{∞}" **6)** "$\frac{1}{0}$" **7)** "1^{∞}" **8)** "$\frac{0}{0}$" **9)** "∞^0" **10)** "$\infty \cdot 0$"

11) "$\frac{\infty}{\infty}$" **12)** "0^0" **13)** "$\infty + \infty$" **14)** "3^{∞}" **15)** "$\frac{1}{0}$" **16)** "$\frac{e}{\infty}$" **17)** "e^{∞}" **18)** "$\ln 0$" **19)** "$0 \cdot \infty$"

20) "∞^{∞}" **21)** "$\frac{\infty}{0}$" **22)** "$\ln \infty$" **23)** "$\mathrm{tg}\, \frac{\pi}{2}$"

- Zaokruži brojeve ispred **određenih** izraza i napisati njihovu vrednost:

1) "1^{∞}" = **2)** "$\frac{0}{0}$" = **3)** "$\infty - \infty$" = **4)** "$7^{-\infty}$" = **5)** "$\frac{\infty}{\infty}$" =

6) "$\frac{1}{\infty}$" = **7)** "$\frac{0}{\infty}$" = **8)** "$\ln 0$" = **9)** "$3^{-\infty}$" = **10)** "$\ln 1$" =

11) "0^0" = **12)** "$0 \cdot \infty$" = **13)** "$\ln \infty$" = **14)** "2^{∞}" = **15)** "0^{∞}" =

16) "∞^0" = **17)** "$\ln e$" = **18)** "$\infty + \infty$" = **19)** "$\frac{1}{0}$" = **20)** "$\infty \cdot \infty$" =

21) "∞^{∞}" = **22)** "$\frac{\infty}{0}$" = **23)** "$\mathrm{arctg}(+\infty)$" = **24)** "$\mathrm{arctg}(-\infty)$" =

- Izračunati:

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

4) $\lim_{x\to e} (1+x)^x =$ **5)** $\lim_{x\to\infty} (\frac{x^2+3}{x^2-2})^{2x^2} =$ **6)*** $\lim_{x\to\infty} (1+x)^{\frac{1}{x}} =$

7) $\lim_{x\to\frac{\pi}{4}} \frac{\sin x}{x} =$ **8)** $\lim_{x\to\infty} \left(\frac{3}{7}\right)^x =$ **9)** $\lim_{x\to\infty} \left(\frac{4}{3}\right)^x =$

10) $\lim_{x\to 0} (x)^{\frac{1}{x}} =$ **11)** $\lim_{x\to\infty} \frac{3x^3 + x - 2}{2x^3 - 2} =$ **12)** $\lim_{x\to\infty} 2^{-x} =$

13) $\lim_{x\to 2} \frac{x^2 - 4}{x - 2} =$ **14)** $\lim_{x\to 2} \frac{4 - x^2}{x - 2} =$ **15)** $\lim_{x\to\infty} 1^x =$

- Izračunati:

1) $\lim\limits_{x\to\infty} \dfrac{x^7-2x^2+3}{2x^3+2x^2-x} =$

2) $\lim\limits_{x\to\infty} \dfrac{x^7-2x^2+3}{-2x^3+2x^2-x} =$

3) $\lim\limits_{x\to\infty} \dfrac{-3x^3-2x^2+1}{5x^3-x^2+2} =$

4) $\lim\limits_{x\to\infty} \dfrac{-3x^3-2x^2+1}{-x^6-x^2+2} =$

5) $\lim\limits_{x\to\infty} \dfrac{x^4}{\ln 3x} =$

6) $\lim\limits_{x\to\infty} \dfrac{x^4}{2^x} =$

7) $\lim\limits_{x\to 0} \dfrac{\sin 5x}{\sin 2x} =$

8) $\lim\limits_{x\to 0} \dfrac{\sin^2 4x}{x^2} =$

9) $\lim\limits_{x\to 0} \dfrac{\ln(5x+1)}{x} =$

10) $\lim\limits_{x\to\infty} \left(\dfrac{2x^2+5}{x^2-3}\right)^{\frac{x^2}{x-1}} =$

11) $\lim\limits_{x\to 1} \left(\dfrac{x^3+2x+3}{x^3+3}\right)^{\frac{-2x^2}{x+3}} =$

12) $\lim\limits_{x\to\infty} \left(\dfrac{x^2+5}{x^2-3}\right)^{\frac{x^2}{x-1}} =$

13) $\lim\limits_{x\to 0} \dfrac{\sqrt{x+4}-2}{\sin 3x} =$

14) $\lim\limits_{x\to\infty} (\sqrt{x^2+1}-\sqrt{x^2-x+1}) =$

- Proveriti da li je funkcija $f(x) = \begin{cases} (1+x)^{\frac{1}{x}}, & x \neq 0 \\ e, & x = 0 \end{cases}$ neprekidna u tački $x = 0$.

- Proveriti da li je funkcija $f(x) = \begin{cases} \frac{x^2-9}{x-3}, & x \neq 3 \\ 2, & x = 3 \end{cases}$ neprekidna u tački $x = 3$.

- Odrediti domen i nacrtati grafik funkcije

1) $f(x) = \ln x$

2) $f(x) = \sqrt{x}$

3) $f(x) = \sqrt{x+1}$

4) $f(x) = \sqrt{-x}$

5) $f(x) = \sqrt{1-x}$

6) $f(x) = e^x$

7) $f(x) = e^{-x}$

8) $f(x) = (\frac{1}{2})^x$