

## ZADACI ZA SAMOSTALNI RAD 2

1) Odrediti

- |                                                                                                          |                                                                                                                                                                  |                                                                                                                  |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 1. $\lim_{n \rightarrow \infty} \left(2 + \frac{1}{n+1}\right)^{n^2}$                                    | 2. $\lim_{n \rightarrow \infty} \left(\frac{1}{3} - \frac{1}{n}\right)^{n+1}$                                                                                    | 3. $\lim_{n \rightarrow \infty} \left(n - \frac{n^2+1}{n+1}\right)^{\frac{2n^2}{n^2+1}}$                         |
| 4. $\lim_{n \rightarrow \infty} \left(\frac{3n^2+2n}{n^2+2}\right)^{\frac{n^3+2n^2+2n}{n^2+2}}$          | 5. $\lim_{n \rightarrow \infty} \left(\frac{2}{3} + \frac{2n+3}{3n+2}\right)^{\frac{2n^2}{n^2+1}}$                                                               | 6. $\lim_{n \rightarrow \infty} \left(\frac{n^5+2n+3n^3+4}{5n^5+4}\right)^{\frac{3n^4+3n^3+1}{3n^3+1}}$          |
| 7. $\lim_{n \rightarrow \infty} \left(\frac{2n+1}{5n+6}\right)^{\frac{2n+1}{5n^2+6}}$                    | 8. $\lim_{n \rightarrow \infty} \left(\frac{3\sqrt[n]{n}+1}{\sqrt[n]{12+1}}\right)^{\frac{3n^3+2n+3}{n^2+1}}$                                                    | 9. $\lim_{n \rightarrow \infty} \left(\frac{7^{n+1}+3^n}{7^n+1}\right)^{n^7}$                                    |
| 10. $\lim_{n \rightarrow \infty} \left(\frac{3^n+2^{n+1}+\sqrt[n]{n}}{3^{n+1}+\sqrt[3]{n}}\right)^{3^n}$ | 11. $\lim_{n \rightarrow \infty} \left(\frac{2 \cdot \sqrt[5]{n} \cdot n^3}{(n+1)!} + \frac{5 \cdot \sqrt[n]{n}}{3 \cdot \sqrt[5]{5}}\right)^{\frac{2n^3}{n+1}}$ | 12. $\lim_{n \rightarrow \infty} \left(\frac{1}{3n} + \frac{5n^2+1}{6n^2+1}\right)^{\left(\frac{6}{5}\right)^n}$ |
| 13. $\lim_{n \rightarrow \infty} \sqrt{n}(\sqrt{n+1} - \sqrt{n})$                                        | 14. $\lim_{n \rightarrow \infty} (\sqrt{n^2-3n+7} - n)$                                                                                                          | 15. $\lim_{n \rightarrow \infty} (\sqrt[3]{n^3+1} - \sqrt[3]{n^3-2n^2})$                                         |
| 16. $\lim_{n \rightarrow \infty} n(\sqrt{n^2+1} - \sqrt[3]{n^3+n})$                                      | 17. $\lim_{n \rightarrow \infty} \frac{1+\sqrt{n}}{1-\sqrt{n}}$                                                                                                  | 18. $\lim_{n \rightarrow \infty} (\sqrt{n^2-1} - n)$                                                             |
| 19. $\lim_{n \rightarrow \infty} (\sqrt{n^2+n} - \sqrt{n^2-n})$                                          | 20. $\lim_{n \rightarrow \infty} \sqrt[3]{n}(\sqrt[3]{n-1} - \sqrt[3]{n+1})$                                                                                     | 21. $\lim_{n \rightarrow \infty} (\sqrt{n(n-3)} - n)$                                                            |

2) Odrediti

- |                                                                                |                                                                      |                                                                                    |                                                                                |
|--------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 1. $\lim_{x \rightarrow 3} \frac{2x^2-2}{x-1}$                                 | 2. $\lim_{x \rightarrow \frac{\pi}{2}} \frac{\sin x}{x}$             | 3. $\lim_{x \rightarrow 0} 2^x$                                                    | 4. $\lim_{x \rightarrow -\infty} \frac{5x^4+2x^2+x+5}{5x^3+x^2+x+3}$           |
| 5. $\lim_{x \rightarrow \infty} \frac{2x^2-2}{x-1}$                            | 6. $\lim_{x \rightarrow \infty} \frac{5x^3-2x^2+4}{3x^3+x^2-7}$      | 7. $\lim_{x \rightarrow \infty} \frac{3x^3+2x-1}{2x^4+3x-2}$                       | 8. $\lim_{x \rightarrow \infty} \frac{\sqrt[3]{x^3+1}}{x}$                     |
| 9. $\lim_{x \rightarrow \infty} \frac{\sqrt{x+\sqrt{x+\sqrt{x}}}}{\sqrt{x+1}}$ | 10. $\lim_{x \rightarrow 1} \frac{2x^2-2}{x-1}$                      | 11. $\lim_{x \rightarrow 2} \frac{x^3-8}{x^2-4}$                                   | 12. $\lim_{x \rightarrow 2} \frac{x^5-16x}{2x^2+4x-16}$                        |
| 13. $\lim_{x \rightarrow -3} \frac{x^2+x-6}{2x^2+9x+9}$                        | 14. $\lim_{x \rightarrow -2} \frac{x^4+2x^3+8x+16}{x^3+7x^2+16x+12}$ | 15. $\lim_{x \rightarrow 5} \frac{3x^2-13x-10}{4x^2-14x-30}$                       | 16. $\lim_{x \rightarrow 4} \frac{\sqrt{x}-2}{4-x}$                            |
| 17. $\lim_{x \rightarrow 1} \frac{\sqrt{x+3}-2}{x^2-1}$                        | 18. $\lim_{x \rightarrow 3} \frac{\sqrt{x+6}-x}{x-3}$                | 19. $\lim_{x \rightarrow 3} \frac{\sqrt[3]{2-x}-1}{x^2+2x-3}$                      | 20. $\lim_{x \rightarrow 0} \frac{\sqrt{1+x}-1}{\sqrt[3]{1+x}-1}$              |
| 21. $\lim_{x \rightarrow 9} \frac{3-\sqrt{x}}{x-9}$                            | 22. $\lim_{x \rightarrow 0} \frac{\sin 7x}{x}$                       | 23. $\lim_{x \rightarrow 1} \frac{\sin(x-1)}{x-1}$                                 | 24. $\lim_{x \rightarrow 0} \frac{\cos x}{x}$                                  |
| 25. $\lim_{x \rightarrow 0} \frac{\operatorname{tg} x}{x}$                     | 26. $\lim_{x \rightarrow 0} \frac{\sin 5x}{\sin 11x}$                | 27. $\lim_{x \rightarrow 1} \frac{\sin(x-1)}{x^2-1}$                               | 28. $\lim_{x \rightarrow 0} \frac{2x - \sin 3x}{3x + \sin x}$                  |
| 29. $\lim_{x \rightarrow 0} \frac{3e^x + \sin x - 3}{\sin 3x}$                 | 30. $\lim_{x \rightarrow 0} \frac{2x}{\sin 5x}$                      | 31. $\lim_{x \rightarrow 0} \left(\frac{3x^2+x-1}{x-1}\right)^{\frac{2x+1}{3x^2}}$ | 32. $\lim_{x \rightarrow 2} \left(\frac{2x^2-3}{x+3}\right)^{\frac{x}{x^2-4}}$ |
| 33. $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{2x}\right)^{x+2}$          | 34. $\lim_{x \rightarrow 0} \frac{\sin 6x}{\ln(x+1)}$                | 35. $\lim_{x \rightarrow 0} \frac{\sin 5x}{3^x-1}$                                 | 36. $\lim_{x \rightarrow 0} \frac{\sin x}{e^x-1}$                              |
| 37. $\lim_{x \rightarrow 0} \frac{e^{5x}-1}{x}$                                | 38. $\lim_{x \rightarrow 3^+} \frac{2}{x-3}$                         | 39. $\lim_{x \rightarrow 3^-} \frac{2}{x-3}$                                       | 40. $\lim_{x \rightarrow 0^-} \frac{2x+ x }{3x}$                               |
| 41. $\lim_{x \rightarrow 0^+} \frac{2x+ x }{3x}$                               | 42. $\lim_{x \rightarrow 1} \frac{x-1}{ x-1 }$                       | 43. $\lim_{x \rightarrow 0} \frac{ \sin x }{x}$                                    | 44. $\lim_{x \rightarrow \infty} \left(1 + \frac{5}{4x}\right)^x$              |
| 45. $\lim_{x \rightarrow \infty} \left(\frac{x^2+1}{x^2-2}\right)^{x^2}$       | 46. $\lim_{x \rightarrow 1^-} \frac{x^2+2}{x-1}$                     | 47. $\lim_{x \rightarrow 1^+} (\sqrt{x} - \sqrt{x-1})$                             | 48. $\lim_{x \rightarrow 0^-} (e^x + e^{\frac{1}{x}})$                         |