

05 - ZADACI ZA NJIH - EXP I LOG FJA

Tekst svih zadataka (osim 1. i 4.) je isti: "Riješi jednadžbu".

1. Nacrtaj: a) $f(x) = 3^x$; b) $f(x) = \log_{\frac{1}{2}} x$.

2. a) $5^x = 12$, $x^5 = 12$.
 b) $5^x = 0$, $4^x = 2$.
 c) $2^x = 7$, $3^x = -1$.
 d)* $e^x = 3$, $x^e = 3$.

3. a) $\log_2 x = 3$, $\log_3 x = 2$.
 b) $\log_4 x = -1$, $\log_4 x = 1$.
 c) $\ln x = 5$, $\ln x = 7$.

4. Koliko je: a) $\left(\frac{1}{64}\right)^{\log_4 3}$; b) $49^{0.5 - \log_7 5}?$

5. a) $\frac{3^x}{3} = 3^{2x} \cdot 9$; b) $\left(\frac{1}{3}\right)^{x+3} = 3^{-x+2}$; c) $4^{3x-1} = \left(\frac{1}{8}\right)^{5-2x}$; d) $9^{2x+1} = 3^{2x+3}$.

6. a) $9^x + 8 \cdot 3^x - 9 = 0$; b) $4^x - 12 \cdot 2^x + 32 = 0$; c) $4^x - 6 \cdot 2^x + 8 = 0$.

7. a) $\log_3(\log_2(x-1)) = 2$; (Rj: $x = 2^9 + 1$) b) $\log_2 x^2 = 4$.

8. a) $\log^2 x + \log x - 6 = 0$; (Rj: $\log x = -3, 2$) b) $\log^2 x - 2 \log x - 8 = 0$;

c) $(\log x - 2)(\log x - 3) = 2$; d) $(\log x + 3)(\log x - 4) = 8$.

9. $\ln x - \ln(x+1) = \ln(x+2)$.

10. a) $3^x(x+1) = 0$; b) $e^{x+1}(x^2 - 3) = 0$.

11.* a) $\frac{2^x - 2^{-x}}{2^x + 2^{-x}} = \frac{1}{3}$; b) $\log_2(x+4) + \log_2(x+2) = 6$; c) $\log_2(x+3) + \log_2(x+2) - 1 = 0$.

12. a) $10^{x+1} = 0.1$; b) $100 \cdot 10^x = 0.01$; c) $4^{x^2-x+1} = 8^x$; d) $2^{2x+1} = \sqrt{8}$; e)
 $\left(\frac{1}{3}\right)^{1-x} \cdot 3^{-\frac{4}{x}} = 9$.

13. Koliko je: a) $125^{\frac{1}{3} \log_5 \sqrt{3}}$; b) $100^{1-\log 2}$; c) $\log_2 \frac{4}{2^{x+1}}?$

14. a) $\log_3(x-3) = -2$; b) $\log(x-1) = -10$.

$$15. \text{ a) } \log_2 |x - 2| = 3; \quad \text{b) } \log_3(\log_2 x) = 2.$$