

Eksponencijalne i logaritamske jednačbe i nejednačbe

1. Riješi eksponencijalne jednačbe:

$$a) 0.2 \cdot \sqrt[3]{25^{x-2}} = 125^{-\frac{2}{3}}$$

$$d) 27^{1-x} + 3 \cdot 9^{-1.5x} = 10$$

$$b) 7 \cdot 6^x - 6 = 36^x$$

$$e) 3 \cdot 7^{x-1} + 2 \cdot 7^{x+1} - 5 \cdot 7^x = 66$$

$$c) \left(\frac{3}{4}\right)^{x-1} \cdot 0.75^{-\frac{2}{x}} = \frac{16}{9}$$

$$f) 7 \cdot 3^{x+1} - 5^{x+2} = 3^{x+4} - 5^{x+3}$$

$$g) 0.5^{2x+3} + 0.25^{x+3} = 18$$



2. Izračunaj a) $\log_{\sqrt{2}}(0.125 \cdot 3^{\log_{27} 8}) =$

b) $0.25 \log 48 + \log 5 - \frac{1}{2} \log \sqrt{3} =$

3. Riješi eksponencijalne nejednačbe: a) $(0.5)^{x^2+3x} \leq 0.125 \cdot 2^{-x}$ b) $2^{2x-5} \geq \frac{1}{16} \cdot 4^{x-1}$

4. Pojednostavi $\frac{2 \log_{\sqrt{5}} 5 + 3 \log_2 8}{2 \log_3 \sqrt{3} - 3 \log_{\frac{1}{2}} \sqrt[3]{2}} =$

5. Odredi x ako je $\log x = 2 \log a - \log b + 0.25 \log(a^2 - b^2) - 2$

6. Riješi logaritamske jednačbe : a) $\log x + \log(x-3) = 1$

b) $\log_{\frac{1}{3}} x + 4 \log_{\sqrt{3}} x - \log_3 x = 12$

c) $\frac{2}{1 - \log x} = \frac{2 \log x}{1 - \log x} + \log x$

d) $\log_2(9^{x-1} + 7) = 2 + \log_2(3^{x-1} + 1)$

e) $\log_5(5^x - 4) = 1 - x$

7. Riješi logaritamske jednačbe : a) $\log(x-2) + \log(x+2) = 2 \log(x-1)$

b) $\log_{25} \left[\frac{1}{5} \log_3(2 + \log_2 x) \right] = -\frac{1}{2}$

c) $\frac{1}{5 - \log x} + \frac{2}{1 + \log x} = 1$

d) $\log_2(4^x - 2^x + 4) = x + 2$

e) $\log_{0.5} x \cdot \log_2 x \cdot \log_{\sqrt{16}} x = 4$

8. Riješi logaritamske nejednačbe : a) $\frac{\log^2 x + 2 \log x - 6}{\log x} < 1$

b) $\frac{3}{2 \log x - 1} - \frac{2}{\log x} < 1$

c) $\log_{\frac{1}{2}} \frac{2x-1}{2x+3} > 1$

d) $\log_2 \frac{3x+3}{x+2} < 2$

