

Esercizi: Radici, Potenze, Logaritmi

Semplificare le seguenti espressioni:

1-4. $\sqrt[3]{27}, \sqrt{27}, \sqrt[3]{-6}, \sqrt[3]{-8}$

5-8. $\sqrt{-9}, \sqrt{81}, \sqrt{x^2}, \sqrt{3}/\sqrt[3]{3}$

9-12. $\sqrt[3]{2} \cdot \sqrt[4]{2}, \sqrt[3]{2} \cdot \sqrt[5]{2}, \sqrt[3]{4} \cdot \sqrt[4]{16}, \sqrt[4]{16}/\sqrt[5]{32}$

13-16. $2^{-2/3}, 3^{3/2}, (3^{1/3})^{3/2}, 3^{1/3} \cdot 3^{1/4}$

17-20. $\sqrt[3]{64/27}, x(x^{1/3})^{-2/3}, [(x^2 + y^2)^{3/2}]^{-1/2}, 8^{-1/3} \cdot (\frac{1}{3})^{-1/8}$.

Risolvere le seguenti disuguaglianze:

21. $\sqrt{x+1} > \sqrt{2x+1}$

22. $-\sqrt{x+1} < \sqrt{x+2}$

23. $\sqrt{\frac{x-1}{x-2}} \geq \sqrt{x}$

24. $-\sqrt{x+2} \geq \sqrt{x+2}$.

Risolvere le seguenti equazioni:

25-28. $\log_2 x = 8, \log_{1/3} x = 27, \log_4(2x) = (1/8), \log_9 x = 1/27$

29-32. $\log_2 x + \log_4(2x) = 5, \log_2(x^2) - \log_4(x) = -3, \log_{1/3}(x^2) = \log_9(x),$
 $\log_3(x^3) + \log_2 7(x^2) = 1$

33-36. $\log_2 x + 3 = 2 \log_2(2-x), \log_3^2 x - 9 = 0, 3^{2x-1} = 2 \cdot 5^{x+1}, 4^{2x-1} = 8$

37-40. $4^{x^2} = 1/256, 27^{3x+1} = 81, 9^{x+2} = 27, (\frac{1}{3})^{x+2} = 81$.

Tracciare i grafici delle seguenti funzioni:

41-44. $3^{x+1}, 2^{-x-2}, 4^{2x+3}, (\frac{1}{9})^x$

45-48. $3^{2-x}, 8^{2-3x}, (\frac{1}{2})^{3-x}, (\frac{1}{8})^{2x/3}$

49-52. $\log_2 x, \log_4(x^2), \log_{1/3}(x), \log_2(x+1)$

53-56. $\log_{1/4}(x^3), \log_{1/2}(2x^2), \log_9 x, \log_{1/27}(x/3)$.