ESERCIZI DI RIEPILOGO SULL'INSIEME DEI NUMERI REALI POSITIVI

EQUAZIONI CON COEFFICIENTI IRRAZIONALI

1. $\sqrt{2}\,x = \sqrt{8}$

2. $\sqrt{2}\,x = \sqrt{6}$

3. $x + \sqrt{3} = 2\,(x + \sqrt{3})$

4. $\sqrt{8}\,x + \sqrt{18}\,x = 5$

5. $\sqrt{3}\,x = \sqrt{6} + \sqrt{27}$

6. $2x + 2\sqrt{3} = \sqrt{3}\,x + 4$

7. $\sqrt{3}\,(x - \sqrt{6} + 1) = \sqrt{3}\,(1 - x) + \sqrt{18}$

8. $x\,(\sqrt{5} - 5) + \sqrt{2}\,(x + 1) - \sqrt{2} = \sqrt{125} + x\,(\sqrt{2} - 5)$

9. $x\sqrt{3} = x + 2\sqrt{3}$

10. $\sqrt{2}\,x = 2 + \sqrt{2}$

11. $2\sqrt{2}\,x + 3 + \sqrt{2} = \sqrt{3}\,x + \sqrt{2}\,(2\sqrt{3} + 1)$

12. $(2 - \sqrt{3})\,x - \sqrt{6} = 2x - \sqrt{3}\,(2\sqrt{2} + 1)$

13. $x\,(3 - \sqrt{3}) = 6\left(\dfrac{x}{3 - \sqrt{3}} - 2\right)$

14. $\dfrac{x - 2\sqrt{2} - 4}{6\sqrt{2}} + \dfrac{x + 2\sqrt{2}}{2\sqrt{2}} = \dfrac{x + 1}{3}$

15. $\dfrac{x - 2}{\sqrt{3} - 1} + \dfrac{2x}{\sqrt{3} + 1} = 3$

16. $\dfrac{3\,(x - 3\sqrt{2})}{4\sqrt{3}} - \dfrac{x - 2\sqrt{3}}{3\sqrt{2}} = \dfrac{1}{2}$

17. $\dfrac{6}{7} + \dfrac{x}{3 - \sqrt{2}} = 2 - \dfrac{x}{7}\,(\sqrt{2} - 3)$

18. $1 - \dfrac{x - 2 + \sqrt{2}}{2 - \sqrt{2}} = \dfrac{2 + \sqrt{2} - x}{2 + \sqrt{2}}$

19. $\dfrac{1}{x} + \dfrac{1}{x - \sqrt{2}} = \dfrac{\sqrt{2}}{x}$

ESPRESSIONI NELL'INSIEME DEI NUMERI REALI POSITIVI

20. $\sqrt{2x^4} + \sqrt{8x^2 y^2} + \sqrt{2y^4} =$

21. $\sqrt{3a^2} \cdot \sqrt[4]{3a} + \sqrt[4]{27ab^2} \cdot \sqrt{b} =$

22. $\sqrt{a^5} + \sqrt{4ab^2} - \sqrt{4a^3} - \sqrt{a^3 b^2} =$

23. $\sqrt[3]{x^4 - x^3 y} + \sqrt[3]{x y^3 - y^4} - \sqrt[3]{x - y} =$

24. $\dfrac{3\sqrt{8} + \sqrt{125} - 2\sqrt{18} + 4\sqrt{50} - \sqrt{45}}{\sqrt{5} + 10\sqrt{2}} =$

25. $\left[\dfrac{\sqrt{3}}{\sqrt{12}} - 2\sqrt{3} + \dfrac{2}{3}\sqrt{\dfrac{3}{8}} : \dfrac{\sqrt{3}}{\sqrt{2}} - \sqrt{\left(\dfrac{1}{\sqrt[4]{3}}\right)^8} + \dfrac{\sqrt{150}}{\sqrt{2}} \right]^2 - \dfrac{109}{4} =$

26. $[(2\sqrt{5} - 3\sqrt{10})^2 - (2\sqrt{2} + 1)^2 + (\sqrt{3} - \sqrt{6})^2] (11 + 7\sqrt{2}) =$

27. $\left(\sqrt{2\sqrt{5}} \right)^2 + (2 + \sqrt{5})^2 + (3 - \sqrt{5})^2 + (\sqrt{7} - 7\sqrt{2})(\sqrt{7} + 7\sqrt{2}) =$

28. $\dfrac{1}{\sqrt{5} + \sqrt{3}} + \dfrac{1}{\sqrt{5} - \sqrt{3}} - \dfrac{3}{2}\sqrt{\dfrac{20}{9}} =$

29. $(\sqrt{2} + \sqrt[3]{5})^2 - (2\sqrt{5} - \sqrt[3]{2})^2 + (\sqrt[3]{5} + \sqrt[3]{2})^2 - 2(\sqrt[6]{200} + 2\sqrt[6]{500}) =$

30. $(\sqrt{a+1} - \sqrt{a-2})(\sqrt{a+1} + \sqrt{a-2}) =$

31. $\sqrt[4]{\dfrac{a^3 + 3a^2 + 3a + 1}{a^2 - 2a + 1}} : \sqrt[3]{\dfrac{a+1}{(a-1)^2}} : \sqrt[6]{\dfrac{a^2 + a}{a-1}} =$

32. $\dfrac{\sqrt{b}}{\sqrt{a} + \sqrt{b}} - \dfrac{\sqrt{b}}{\sqrt{a} - \sqrt{b}} + \dfrac{2a}{a-b} =$

33. $\left(\sqrt[3]{a \sqrt[5]{a^2 \sqrt{a}}} \right)^2 =$

34. $\dfrac{3\sqrt{a} + 2\sqrt{x}}{3\sqrt{a} - 2\sqrt{x}} - \dfrac{3\sqrt{a} - 2\sqrt{x}}{3\sqrt{a} + 2\sqrt{x}} - \dfrac{24\sqrt{ax}}{9a - 4x} =$

35. $\dfrac{\sqrt[4]{1-x} + \dfrac{1}{\sqrt[4]{1+x}}}{1 + \dfrac{1}{\sqrt[4]{1-x^2}}} - \dfrac{\sqrt{1-x}}{\sqrt[4]{1-x}} =$

36. $\sqrt{\dfrac{1-a^3}{3-3a}} : \left(\sqrt{\dfrac{a + a^2 + a^3}{1+a}} : \sqrt{3a^3} \right) =$

37. $\sqrt{\dfrac{a^2 + ab}{xy}} \cdot \sqrt[4]{\dfrac{ab + b^2}{x}} : \sqrt{\dfrac{a+b}{xy}} : \sqrt[4]{\dfrac{a^3 b^2 + a^2 b^3}{x^2}} =$

38. $\sqrt[3]{x\sqrt{x}} \cdot \sqrt{x\sqrt{x\sqrt[3]{x}}} : \sqrt[3]{x} =$