

ESERCIZI DI RIEPILOGO IN \mathbb{R}_0^+

1. $\sqrt{72} + \sqrt{8} - \sqrt{18} = 6\sqrt{2} + 2\sqrt{2} - 3\sqrt{2} = 5\sqrt{2}$
2. $\sqrt{90} - \sqrt{40} = 3^{\frac{2}{2}} \cdot 10^{\frac{1}{2}} - 2^{\frac{2}{2}} \cdot 10^{\frac{1}{2}} = 3\sqrt{10} - 2\sqrt{10} = \sqrt{10}$
3. $\sqrt{125} + \sqrt{180} - 3\sqrt{20} = 5\sqrt{5} + 6\sqrt{5} - 6\sqrt{5} = 5\sqrt{5}$
4. $2\sqrt{5} - \sqrt{45} = 2\sqrt{5} - 3\sqrt{5} = -\sqrt{5}$
5. $\sqrt{32} + 2\sqrt{18} - 3\sqrt{50} = 4\sqrt{2} + 6\sqrt{2} - 15\sqrt{2} = -5\sqrt{2}$
6. $\sqrt{243} - \sqrt{12} = 9\sqrt{3} - 2\sqrt{3} = 7\sqrt{3}$
7. $\sqrt{125} + \sqrt{45} - \sqrt{20} = 5\sqrt{5} + 3\sqrt{5} - 2\sqrt{5} = 6\sqrt{5}$
8. $2\sqrt{45} - 3\sqrt{20} + \sqrt{500} = 6\sqrt{5} - 6\sqrt{5} + 10\sqrt{5} = 10\sqrt{5}$
9. $\sqrt{\frac{9}{8}} - \sqrt{\frac{49}{18}} + \sqrt{\frac{81}{50}} = \frac{3}{2\sqrt{2}} - \frac{7}{3\sqrt{2}} + \frac{9}{5\sqrt{2}} = \frac{45 - 70 + 54}{30\sqrt{2}} = \frac{29}{30\sqrt{2}}$
10. $\sqrt{\frac{3}{4}} - \sqrt{\frac{27}{25}} + \sqrt{\frac{75}{36}} = \frac{1}{2}\sqrt{3} - \frac{3}{5}\sqrt{3} + \frac{5}{6}\sqrt{3} = \frac{15 - 18 + 25}{30}\sqrt{3} = \frac{11}{15}\sqrt{3}$
11. $2\sqrt[3]{3} + \sqrt[3]{81} - 4\sqrt[3]{3} = 2\sqrt[3]{3} + 3\sqrt[3]{3} - 4\sqrt[3]{3} = \sqrt[3]{3}$
12. $\sqrt[3]{16} - 4\sqrt[3]{250} + 3\sqrt[3]{54} = 2\sqrt[3]{2} - 20\sqrt[3]{2} + 9\sqrt[3]{2} = -9\sqrt[3]{2}$
13. $(5\sqrt[3]{16} + \sqrt[3]{250} - \sqrt[3]{54}) \cdot \sqrt[3]{4} = (10\sqrt[3]{2} + 5\sqrt[3]{2} - 3\sqrt[3]{2}) \cdot \sqrt[3]{4} = 12\sqrt[3]{2} \cdot \sqrt[3]{4} = 12 \cdot 2^{\frac{1}{3}} \cdot 2^{\frac{2}{3}} = 24$
14. $(\sqrt[3]{24} - \sqrt[3]{81} + 2\sqrt[3]{3})^3 = (2\sqrt[3]{3} - 3\sqrt[3]{3} + 2\sqrt[3]{3})^3 = (\sqrt[3]{3})^3 = 3$
15. $\sqrt{3a^4} + \sqrt{27} - 2\sqrt{12} = a^2\sqrt{3} + 3\sqrt{3} - 4\sqrt{3} = a^2\sqrt{3} - \sqrt{3} = (a^2 - 1)\sqrt{3}$
16. $\sqrt[3]{16} - \sqrt[3]{2a^3b^3} + \sqrt[3]{54} = 2\sqrt[3]{2} - ab\sqrt[3]{2} + 3\sqrt[3]{2} = (5 - ab)\sqrt[3]{2}$
17. $\sqrt{(a+b)^3} - \sqrt{4a+4b} - \sqrt{a^3+a^2b} = (a+b)\sqrt{a+b} - 2\sqrt{a+b} - a\sqrt{a+b} = (a+b-2-a)\sqrt{a+b} = (b-2)\sqrt{a+b}$
18. $5\sqrt[3]{16} - \sqrt[3]{54} + \sqrt[3]{250} + \sqrt[4]{162} - \sqrt[4]{32} = 10\sqrt[3]{2} - 3\sqrt[3]{2} + 5\sqrt[3]{2} + 3\sqrt[4]{2} - 2\sqrt[4]{2} = 12\sqrt[3]{2} + \sqrt[4]{2}$
19. $\sqrt[3]{a^2x} \cdot \sqrt{a^2x^3} = \sqrt[6]{a^{10}x^{11}}$
20. $\sqrt{2a^2} \cdot \sqrt[5]{2^3a^2} = \sqrt[10]{2^{11}a^{14}}$
21. $(\sqrt[3]{a^4b} + \sqrt[3]{ab^4}) \cdot \sqrt[3]{a^2b^2} = ab(a+b)$
22. $\sqrt[4]{\frac{(1-x)^2}{(a+b)^3}} : \sqrt[4]{\frac{a+b}{(1-x)^2}} = \frac{1-x}{a+b}$
23. $\sqrt{2}(\sqrt{8}+1) = 4 + \sqrt{2}$
24. $2\sqrt{a}(\sqrt{a} + \sqrt{3}) = 2a + \sqrt{12a}$
25. $\sqrt[3]{8a^2b} + \sqrt[6]{2^6a^4b^2} = 4\sqrt[3]{a^2b}$
26. $\frac{\sqrt[4]{2^4a^3} + 3\sqrt[12]{a^9}}{\sqrt[4]{3^4a}} = \frac{5}{3}\sqrt{a}$