Addition and Subtraction of Radicals.

1. $4\sqrt{3} - 7\sqrt{3} = \boxed{-3\sqrt{3}}$

2. $\sqrt[3]{9x} - 5x\sqrt[3]{9x} = \boxed{\sqrt[3]{9x} - 5x\sqrt[3]{9x}}$

3. $8\sqrt{3} - 2\sqrt{27} = \boxed{2\sqrt{3}}$

4. $\sqrt[3]{48} + 2\sqrt[3]{6} - 5\sqrt[6]{36} = \boxed{-\sqrt[3]{6}}$

5. $x\sqrt{11} - 2y\sqrt{11} + 6\sqrt{11} = \boxed{(x - 2y + 6)\sqrt{11}}$

6. $\sqrt[4]{243} - 2\sqrt[4]{3} = \boxed{\sqrt[4]{3}}$

7. $\sqrt[6]{25x^2} - x\sqrt[7]{125x^3} - 3\sqrt[3]{5x} = \boxed{-2\sqrt[3]{5x} - x\sqrt[7]{5^3 x^3}}$

8. $3x\sqrt{16x^3} + 2x^2\sqrt{x} + \sqrt[6]{x^3} = \boxed{14x^2\sqrt{x} + \sqrt{x}}$

9. $5\sqrt{\dfrac{1}{6}} - \sqrt{54} + 2\sqrt{150} = \boxed{\dfrac{47\sqrt{6}}{6}}$

10. $4\sqrt{2x} - 5\sqrt[3]{2x} + 3\sqrt[6]{4x^2} - 7\sqrt[6]{8x^3} + 6\sqrt{\dfrac{9}{2}x} =$
$\boxed{6\sqrt{2x} - 2\sqrt[3]{2x}}$

11. $5\sqrt[3]{64x^5 y} - 3\sqrt[3]{27x^2 y} = \boxed{20x\sqrt[3]{x^2 y} - 9\sqrt[3]{x^2 y}}$

12. $\sqrt{\dfrac{9}{5}} + \sqrt{125} - \sqrt{\dfrac{20}{9}} = \boxed{\dfrac{74\sqrt{5}}{15}}$

13. $\sqrt[4]{80} + \sqrt[4]{\dfrac{1}{125}} - \sqrt[8]{25} = \boxed{\dfrac{6\sqrt[4]{5}}{5}}$

14. $\sqrt{\dfrac{a}{11x}} - \dfrac{3}{\sqrt{11ax}} + \sqrt[4]{\dfrac{121a^2}{x^2}} = \boxed{\dfrac{(12a - 3)\sqrt{11ax}}{11ax}}$

15. $\sqrt{\dfrac{x-3}{x+2}} - \sqrt{\dfrac{x+2}{x-3}} = \boxed{\dfrac{-5\sqrt{(x-3)(x+2)}}{(x-3)(x+2)}}$

16. $\sqrt{\dfrac{x+y}{x-y}} + \sqrt{\dfrac{x-y}{x+y}} = \boxed{\dfrac{2x\sqrt{(x-y)(x+y)}}{(x-y)(x+y)}}$

17. $\sqrt{20x^4 + 80x^3 + 80x^2} - \sqrt{20x^4 + 20x^3 + 5x^2} = \boxed{3x\sqrt{5}}$

18. $\sqrt{\dfrac{x}{y} - 2} + 3\sqrt{1 - \dfrac{2y}{x}} - \dfrac{2}{x}\sqrt{x^3 y^2 - 2x^2 y^3} =$
$\boxed{\dfrac{\sqrt{(x-2y)y}}{y} + \dfrac{3\sqrt{(x-2y)x}}{x} - 2y\sqrt{(x-2y)}}$

19. $\sqrt[3]{250x^5 y} - \sqrt[6]{256x^4 y^2} + \sqrt[3]{54x^8 y} =$
$\boxed{(3x^2 + 5x - 2)\sqrt[3]{2x^2 y}}$

20. $\sqrt{54} + \sqrt{18} = \boxed{3\sqrt{6} + 3\sqrt{2}}$

21. $\sqrt[3]{81} + \sqrt[3]{192} + \sqrt[3]{16} = \boxed{7\sqrt[3]{3} + 2\sqrt[3]{2}}$

22. $\sqrt[3]{16} + \sqrt[3]{-250} = \boxed{-3\sqrt[3]{2}}$

23. $\sqrt[3]{x^{-2}} + \sqrt[3]{8x^4} = \boxed{\dfrac{\sqrt[3]{x} + 2x^2\sqrt[3]{x}}{x}}$

24. $\sqrt[5]{64x^{-3}} + \sqrt[5]{-486x^7} = \boxed{\dfrac{2\sqrt[5]{2x^2} - 3x^2\sqrt[5]{2x^2}}{x}}$

25. $\sqrt[4]{48} + \sqrt[4]{\dfrac{1}{27}} - \sqrt[3]{9} = \boxed{\dfrac{7\sqrt[4]{3}}{3} - \sqrt[3]{3^2}}$

26. $2\sqrt[3]{125x^4 y} - 5\sqrt[3]{27xy^4} = \boxed{10x\sqrt[3]{xy} - 15y\sqrt[3]{xy}}$

27. $\sqrt{\dfrac{x}{7y}} - \dfrac{3}{\sqrt{7xy}} + \sqrt[4]{\dfrac{49y^2}{x^2}} = \boxed{\dfrac{(x - 3 + 7y)\sqrt{7xy}}{7xy}}$

28. $4\sqrt[3]{81x^4 y^2} - 2x\sqrt[6]{576x^8 y^4} + \sqrt[3]{24x^4 y^2} =$
$\boxed{14x\sqrt[3]{3xy^2} - 4x^2\sqrt[3]{3xy^2}}$