

Radicals - Operations

Adding/Subtracting radicals

Procedure

1. Simplify each radical
2. Combine radicals with same radicands

Example $3\sqrt{12} + 5\sqrt{27} - \sqrt{48} + 2\sqrt{3}$

$$\begin{aligned}1. \quad & 3\sqrt{4 \cdot 3} + 5\sqrt{9 \cdot 3} - \sqrt{16 \cdot 3} + 2\sqrt{3} \\& = 6\sqrt{3} + 15\sqrt{3} - 4\sqrt{3} + 2\sqrt{3} \\2. \quad & = 19\sqrt{3}\end{aligned}$$

Perform the indicated operations

1. $3\sqrt{5} + 4\sqrt{5}$

2. $4\sqrt{11} - 7\sqrt{11}$

3. $4\sqrt{11} + 5\sqrt{2} - 7\sqrt{11} + 3\sqrt{2}$

4. $3\sqrt{12} + 5\sqrt{20} - 8\sqrt{12} + 3\sqrt{20}$

5. $3\sqrt{18} + 5\sqrt{90} - 8\sqrt{90} + 3\sqrt{8}$

6. $2\sqrt{3} + 6\sqrt{27} - 5\sqrt{48} - 2\sqrt{12}$

7. $3\sqrt{8} - 5\sqrt{50} - 6\sqrt{2} + \sqrt{98}$

8. $2\sqrt{125} + 4\sqrt{20} + 5\sqrt{45} - \sqrt{80}$

9. $2\sqrt{4a} + 7\sqrt{9a} - 3\sqrt{16a} - 10\sqrt{25a}$

10. $8\sqrt{2xy^5} - y\sqrt{50xy^3}$

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