

Adding Radicals

Simplify each expression completely. Combine only like radicals.

Combining Like Square Radicals

1. $4\sqrt{3} + 12\sqrt{3}$

2. $6\sqrt{2} - 14\sqrt{2}$

3. $-14\sqrt{2} - 9\sqrt{2}$

4. $7\sqrt{5} - 12\sqrt{5} + 3\sqrt{5}$

5. $-6\sqrt{7} + 2\sqrt{7} - 5\sqrt{7}$

6. $9\sqrt{2} - 4\sqrt{2} - 11\sqrt{2}$

7. $-8\sqrt{3} + 15\sqrt{3} - 4\sqrt{3} + 2\sqrt{3}$

8. $12\sqrt{5} - 7\sqrt{5} - 9\sqrt{5} + 3\sqrt{5}$

Simplify, Then Combine Square Radicals

1. $\sqrt{12} + \sqrt{27}$

2. $\sqrt{75} + \sqrt{48}$

3. $\sqrt{175} - \sqrt{63}$

4. $\sqrt{147} + \sqrt{300}$

5. $\sqrt{242} - \sqrt{98}$

6. $\sqrt{432} + \sqrt{192}$

7. $\sqrt{675} + \sqrt{972}$

8. $\sqrt{1452} - \sqrt{300}$

Adding and Subtracting Multiple Radicals

1. $\sqrt{12} + \sqrt{75} + \sqrt{48}$

2. $4\sqrt{27} + \sqrt{75} - \sqrt{12}$

3. $\sqrt{20} + \sqrt{18} - \sqrt{45} - \sqrt{50}$

4. $\sqrt{72} + \sqrt{98} - \sqrt{18} - \sqrt{50} + \sqrt{8}$

5. $3\sqrt{200} - 2\sqrt{32} + \sqrt{288} - \sqrt{128}$

6. $2\sqrt{75} - 3\sqrt{12} + \sqrt{98} - \sqrt{8}$

7. $3\sqrt{72} - 2\sqrt{50} + \sqrt{27} - 4\sqrt{12} + \sqrt{8}$

8. $2\sqrt{192} - 3\sqrt{108} + \sqrt{75} - 2\sqrt{48} + \sqrt{147}$

Radicals with Variables & Different Indices

1. $2\sqrt{x} - 3\sqrt{y} + 2\sqrt{x} + 2\sqrt{y}$

2. $3\sqrt{2x^2} + 2\sqrt{8x^2}$

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

4. $\sqrt{75x^2} + \sqrt{48x^2} - \sqrt{12x^2} - \sqrt{3x^2}$

5. $\sqrt{18} - \sqrt{50y^2} + \sqrt{8y^2}$

6. $2\sqrt{32x^2} - 3\sqrt{18x^2} + \sqrt{8x^2} - \sqrt{2x^2}$

7. $\sqrt[3]{32} - \sqrt{32} + \sqrt[3]{108} + \sqrt{98}$

8. $8\sqrt[3]{2x} - 7\sqrt{2x} - 5\sqrt[3]{2x} + \sqrt{2x}$