

Name:

Date:

Period:

Combining Radicals (add/subtract) - To combine radicals:

- [1] You **MUST** have the same radicand.
- [2] If not, simplify until you have the same radicand.
(You may never get the same radicand, but **ALWAYS SIMPLIFY**)
- [3] If you have the same radicand, **Add/Subtract** coefficients and **keep** the radicand.
- [4] If, once simplified, you don't have the same radical, include ALL in your answer.

Special Reminders:

coefficient $\sqrt{\text{radicand}}$

- "Like" Radicals – same radicand ---- $\sqrt{3}$, $4\sqrt{3}$, $-5\sqrt{3}$, $x\sqrt{3}$
- "Unlike" Radicals – different radicands ---- $\sqrt{3}$, $3\sqrt{2}$, $\sqrt{33}$, $\sqrt{3x^2}$

Combining Radicals is like adding/subtracting fractions (common denominator, combine numerators).

When simplifying, do your work off to the side to make the problem more organized and easier to solve.

Examples:

1. $8\sqrt{5} + \sqrt{5} - 2\sqrt{5}$

2. $15\sqrt{y} - 7\sqrt{y}$

3. $3\sqrt{50} - 5\sqrt{18}$

4. $\sqrt{3a^2} + \sqrt{12a^2}$

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

6. $5\sqrt{8} - 3\sqrt{18}$

7. $\sqrt{27} + \sqrt{75}$

8. $\sqrt{12} - \sqrt{48} + \sqrt{3}$

9. $3\sqrt{8} - \sqrt{2}$

10. $\sqrt{80} - \sqrt{5}$

11. $\sqrt{45} + \sqrt{80}$

12. $5\sqrt{98} + 3\sqrt{32}$