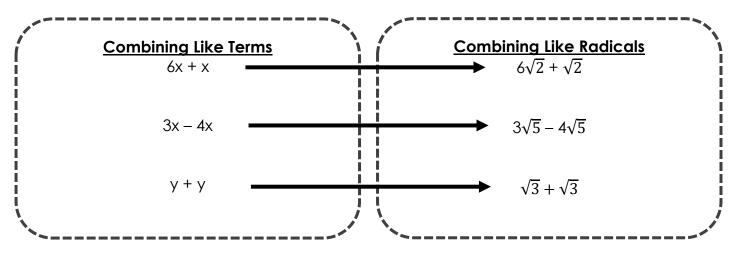
Adding and Subtracting Radicals



Combining (adding/subtracting) radicals is just like combining like terms:

When combining (adding/subtracting) radicals, does the number inside the radical change?

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What happens when there are NO like radicals to combine?

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| Example 1: No like radicals and no radicals to simplify | $2\sqrt{5} + 5\sqrt{2}$ |
|---|-------------------------------------|
| Example 2: 2 like radicals and 1 unlike radicals (nothing can simplify) | $2\sqrt{5} + 5\sqrt{2} - 3\sqrt{5}$ |
| Example 3: 1 radical can simplify | $\sqrt{6} + \sqrt{24}$ |
| Example 4: 2 radicals can simplify | $5\sqrt{18}-4\sqrt{8}$ |

Let's make sure we see the difference between the different kinds of simplifying

| Combining Like Terms | Simplifying | Multiplying | Combining Radicals (add/subtract) |
|----------------------|----------------|-----------------------------|-----------------------------------|
| 3x – 7x + 5 | 3√175 | $5\sqrt{7}\cdot\sqrt{21}$ | $3\sqrt{2} - 7\sqrt{2} + 5$ |
| -7 – 3x + x + 8 | $-2\sqrt{40}$ | $-\sqrt{6}\cdot 4\sqrt{24}$ | $\sqrt{12} + 6\sqrt{3}$ |
| x – 2x | $-3\sqrt{144}$ | $\sqrt{10} \cdot \sqrt{70}$ | $\sqrt{45} - \sqrt{20}$ |