

Algebra RH

Essential Question: How do we add and subtract radical expressions?

Do Now: Are the following statements true or false?

A. $\sqrt{4} + \sqrt{4} = \sqrt{8}$

B. $\sqrt{4} + \sqrt{4} = 2\sqrt{4}$

C. $\sqrt{9} + \sqrt{16} = \sqrt{25}$

D. $2\sqrt{9} + 3\sqrt{9} = 5\sqrt{9}$

Adding and Subtracting Radicals

- In order to add or subtract radicals, the radicals must be “like radicals” (same radicand and same index)
- Add or subtract the coefficients of the radicals and keep the radicand the same
- Simplify final answer

Examples:

A. $8\sqrt{5} + \sqrt{5}$

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

C. $2\sqrt{6} + 3\sqrt{6} - \sqrt{24}$

Perform the indicated operation. All final answers must be in simplest radical form.

1. $14\sqrt{6} - 2\sqrt{6}$

2. $\sqrt{2} + \sqrt{50}$

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

4. $3\sqrt{32} - 6\sqrt{8}$

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

6. $3\sqrt{50} - 5\sqrt{18}$

7. $\sqrt{3} + \sqrt{6}$

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

9. $3\sqrt{3x^3} - \sqrt{12x^3}$

10. $\sqrt{100b} - \sqrt{64b} + \sqrt{9b}$

11. $\sqrt{7a} + \sqrt{28a}$

12. $5\sqrt{3}(3\sqrt{2} - \sqrt{3})$

13. $(2 - \sqrt{5})^2$

14. Represent the perimeter and area of the following rectangle in simplest radical form.

