Name

Class

Date



**Operations with Radical Expressions**

You can use the Distributive Property with radical expressions.

**Problem**

What is the simplified form of ?

You need to simplify the radical expressions before you know if there are any like radicals that can be subtracted.

|  |  |
| --- | --- |
| **Solve** | Look for a common radical in  and   is factored completely, but  can be factored further. |
|  | Factor  completely. |
|  | Find pairs of factors that you can factor out. These are perfect-square factors. |
|  | Remove the perfect-square factor. |
|  | Now you can see that each term in the expression shares the common radical . |
|  | Use the Distributive Property to combine like radicals. |
|  | Subtract. |
|  | Simplify. |
| **Check** | Check your solution. |
|  | Subtract from both sides. |
|  | Add to both sides. |
|  | Simplify |
| Solution: The simplified form of  is . | |

**Exercises**

**Simplify each sum or difference.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1.** |  | **2.** |  | **3.** |  |
| **4.** |  | **5.** |  | **6.** |  |
| **7.** |  | **8.** |  | **9.** |  |

Name

**Operations with Radical Expressions**



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When you have two binomial factors that include radical expressions, treat them like any other binomials and multiply using FOIL (**F**irst, **O**uter, **I**nner, **L**ast).



**Problem**

What is the simplified form of 

|  |  |  |
| --- | --- | --- |
| **Solve** | Use FOIL to find the product of each pair of terms. Multiply the coefficients and then multiply the radicals. Remove all perfect-square factors. | |
|  |  |  |
|  | **F**irst: |  |
|  | **O**uter: | |
|  | **I**nner: | |
|  | **L**ast: |  |
|  | = |  |
|  | = | Group like terms. |
|  | = | Distributive Property |
|  | = | Simplify. |

Solution: The simplified form of  is .

**Exercises**

**Simplify each radical expression.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **10.** |  | **11.** |  | **12.** |  |
| **13.** |  | **14.** |  | **15.** |  |
| **16.** |  | **17.** |  | **18.** |  |