Section 8.4 Adding, Subtracting, and Multiplying Radical Expressions

# Objective 1: Adding or Subtracting Radical Expressions

We have learned that the distributive property can be used to add or subtract like terms. For example, and are like terms, and the sum of these terms can be found as follows.

The distributive property can also be used to add **like radicals** which are radicals with the same index and the same radicand. For example, and are like radicals, and the sum of these radicals can be found as follows.

The following expressions contain unlike radicals and cannot be simplified any further.

Add or subtract. Assume that all variables represent positive real numbers.

|  |  |
| --- | --- |
| a.  | b.  |

When adding or subtracting radicals, check to see if any of the radicals in the expression can be simplified.

Add or subtract. Assume that all variables represent positive real numbers. Give answers in simplest form.

|  |  |
| --- | --- |
| c.  | d.  |

|  |  |
| --- | --- |
| e.  | f.  |

# Objective 2: Multiplying Radical Expressions

We can also use the distributive property to multiply radical expressions in the same way that we use it to multiply polynomial expressions.

Multiply. Assume that all variables represent positive real numbers. Give answers in simplest form.

|  |  |
| --- | --- |
| a.  | b.  |