Section 8.3 Simplifying Radical Expressions

# Objective 1: Using the Product Rule

Using properties of exponents, we know that . Writing this in radical notation gives us the **product rule for radicals**.

**Product Rule for Radicals:**

If and are real numbers, then

.

Multiply.

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

# Objective 2: Using the Quotient Rule

Using properties of exponents, we know that . Writing this in radical notation gives us the **quotient rule for radicals**.

**Quotient Rule for Radicals:**

If and are real numbers and is not zero, then

.

Use the quotient rule to simplify.

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

# Objective 3: Simplifying Radicals

The product and quotient rules for radicals can be used to **simplify radicals**. In general, we say a radical of the form is simplified when the radicand contains no factors that are perfect powers (other than or ).

Write each radical in simplified form. Assume that all variables represent positive real numbers.

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

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

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

Use the quotient rule to divide. Then simplify if possible.

g.