**Multiplying & Dividing Radical Expressions**



* **Multiplying Radicals**

In order to multiply radicals, they must have the same \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Examples:** \*Always leave your final answer in **simplest form**.

1) Product of two square roots

 =  What are the **restrictions** on ***a*** and ***b***? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Examples: a)  b)  c) 

2) The product of two mixed radicals

 =  What are the **restrictions** on ***a*** and ***b***? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: a)  b)  c) 

3) Using the **distributive property** to multiply radicals

 =  What are the **restrictions** on ***a*** and ***b***? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: a)  b)  c) 

* **Dividing Radicals**

In order to divide radicals, they must have the same \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Examples:** \*Always leave your final answer in **simplest form**.

4) The quotient of two square roots

 What are the **restrictions** on ***a*** and ***b*** ? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: a)  b)  c)  d) 

* **Rationalizing the Denominator**

If there is a **radical** in the denominator of an expression that cannot be divided out (as in the examples above), you must **rationalize** the denominator. This means convert the denominator to a \_\_\_\_\_\_\_\_\_\_\_\_ number.

A rational number cannot be a non-perfect square. Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: \*Always leave your final answer in **simplest form**.\*

1)  What can you multiply get rid of the radical in the denominator? \_\_\_\_\_\_\_\_

 Why is the **product** equivalent to the original expression? \_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2)  3)  4)  5) 

Look at Example 3 for three different approaches…

6)  7)  8) 