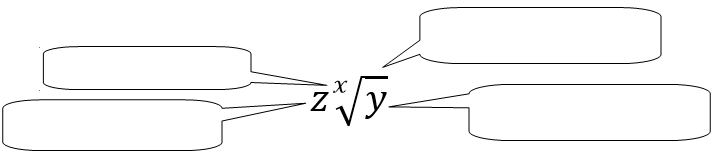
Math 3 1.1 Radical Operations Unit 1

*EQ: How can we use the index to help simplify a radical expression?*



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| When simplifying radicals, factor the insides of the radical. Then circle the pairs, triples or quadruples (depending on the index) and pull them outside. Multiply outside factors on the outside and inside factors on the inside. | **Example 1:** Simplify  **Example 2:** Simplify | **Example 3:** Simplify  **Example 4:** Simplify |

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| When multiplying radicals, start by simplifying the radicals, if necessary. Then, multiply **outsides by outsides** and **insides by insides**. Then simplify again. | **Example 5:**  **Example 6:** | **Example 7:**  **Example 8:** |

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| **Adding Radicals**  \*\*Only add like terms (like radicands and indices!)…so simplify first, then add if possible.  **Example 1:**  **Example 2:** | **Subtracting Radicals**  \*\*Only subtract like terms (like radicands and indices!)…so simplify first, then subtract if possible  **Example 3:**  **Example 4:** |
| **Multiplying Radicals**  \*\*Multiply using the BOX method or FOIL method\*\*  **Example 5:**  **Example 6;** | **Simplifying Quotients**  \*\*use a conjugate to rationalize a denominator\*\*  **conjugate**– expressions that differ only in the signs of the second terms. (*x + y* and *x – y* are conjugates)  **Example 7:**  **Example 8:** |