Simplifying Radicals

Warm up: Make a factor tree of the following numbers, 12, 60, 100

Show how to make prime factorization trees

12: 2, 2, 3

60: 2, 2, 3, 5

100: 2, 2, 5, 5

A radical is a symbol that represents the meaning, “the square root of” and looks like $\sqrt{}$. To square root is to find two factors that are equal to each other. Ex) $\sqrt{81}=9$. Two factors of 81 that equal each other are 9.

Do you remember that if there is no number in front of an x it is a 1. There is a little hidden number in square roots as well. It’s a little 2 at the top right. If there is no number it is a 2, sometimes there are other numbers such as 3, 4, 5, …

Go through the squares 1-15

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225

In some cases, the numbers inside the radical do not always work out so nicely. In this case there is a certain way to simplify radicals.

Step 1: Create a prime factorization of the number inside the radical. This means a factor a tree.

Step 2: Circle the prime numbers that repeat. For every 2 numbers that repeat out 1 out front of the radical.

 -If multiple numbers can be pulled out multiply them together in front of the radical.

Step 4: Multiple the numbers that did not get pulled out in front of the radical and leave that product inside the radical

Ex) square root of 12…. 12 can be broken into 2 2 and 3. The 2’s are a pair so they can be pulled out of the radical and the three is not a pair so the answer is $2\sqrt{3}$

 Square root of 124

 Square root of 16

 Square root 8

 Square root 120

You try 24, 32, 48, 256

HW: Wkst