

DO NOW

What makes a radical irrational?

$\sqrt{\text{not a perfect}}$

*radicand is not a perfect square

Simplifying Radicals - Day 1

$\sqrt{12}$ Irrational

- Approximate the value using a Calculator
- exact value - radical will still exist

Product Property For Square Roots:

If $a \geq 0$ and $b \geq 0$ (a & b are not negative),
then $\sqrt{a \cdot b} = \sqrt{a} \cdot \sqrt{b}$

Recall: Perfect squares

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

- Procedure:
1. Find two factors whose product is the radicand.
* 1st factor MUST BE a perfect square
 2. Split the factors into two separate radicals
 3. Take any rational roots.

Examples:

1. $\sqrt{12}$
 $\sqrt{4 \cdot 3}$
 $\sqrt{4} \sqrt{3}$
 $2\sqrt{3}$

2. $\sqrt{45}$
 $\sqrt{9 \cdot 5}$
 $\sqrt{9} \sqrt{5}$
 $3\sqrt{5}$

3. $\sqrt{18}$
 $\sqrt{9 \cdot 2}$
 $3\sqrt{2}$

4. $\sqrt{60}$
 $\sqrt{4 \cdot 15}$
 $2\sqrt{15}$

5. $\sqrt{700}$
 $\sqrt{100 \cdot 7}$
 $10\sqrt{7}$

6. $\sqrt{242}$
 $\sqrt{121 \cdot 2}$
 $11\sqrt{2}$

HOMEWORK

Worksheet - HW Simplifying Radicals