

\* I will collect book work from yesterday the Monday after break!

A# 7.5 p 413 # 18-34 evens

## Algebra 2 Thursday 4-2-15

### Guided Notes:

- Read over the guided notes from yesterday so you are able to add, subtract and multiply radicals.
- Read over new notes from today: Multiply binomials with radicals and Conjugates

### Assignment:

- 7.5 Worksheet (Add, Subtract, Multiply Radicals) **TURN IN AT END OF HOUR**



### Yesterday we...

- Practiced using nth roots

### Today, we will be able to...

- Simplify radical expressions
- Add, subtract, and multiply radical expressions

### We will show we can do this by...

- Asking and answering questions
- Completing the book work

### To know how well we are learning this, we will look for...

- Correct answers

### It is important for us to learn this (or be able to do this) because....

- Radicals as commonly used in upper mathematics courses and it is important we understand what operations we can perform with them and how to perform them.

### After Spring Break we will...

- Continue working with radicals.

### 2015 Daily Holidays that fall on April 2, include:

- International Children's Book Day
- Maundy Thursday - April 2, 2015 (movable date)
- National Ferret Day
- National Love Your Produce Manager Day
- National Peanut Butter and Jelly Day
- Pasqua Florida Day
- Reconciliation Day
- World Autism Awareness Day

1. Multiply binomials with radicals

A.  $(2\sqrt{3} + 3\sqrt{5})(3 - \sqrt{3})$

$$\begin{array}{cccc} \text{F} & & \text{I} & \\ (2\sqrt{3})(3) & + & (3\sqrt{5})(3) & + \\ (2\sqrt{3})(-\sqrt{3}) & + & (3\sqrt{5})(-\sqrt{3}) & \end{array}$$

FOIL like you would with regular binomials.

$$6\sqrt{3} - \underline{2(3)} + 9\sqrt{5} - 3\sqrt{15}$$

Multiply whole numbers then mult.  $\sqrt{}$ 's.

$$6\sqrt{3} - 4 + 9\sqrt{5} - 3\sqrt{15}$$

Simplify

Cannot combine any ... no like terms.

B.  $(4\sqrt{2} + 7)(4\sqrt{2} - 7) \rightarrow$  This is called a conjugate because the terms are the same, but opposite signs.

Instead of foiling a conjugate, you only need to:

multiply 1st terms:  $4\sqrt{2} \cdot 4\sqrt{2} = 16\sqrt{4} = 16 \cdot 2 = 32$

Multiply last terms:  $7 \cdot (-7) = -49$

So:

$$(4\sqrt{2} + 7)(4\sqrt{2} - 7)$$

$$= 32 - 49 = -17$$

When we multiply conjugates, the  $\sqrt{}$  goes away and you should have only a number.

use conjugates to rationalize:

Since we need to remove  $\sqrt{\quad}$  from denominators, when we have a binomial in the denom., we multiply by a fraction made up of the conjugate:

$$\frac{2+\sqrt{3}}{4-\sqrt{3}} \rightarrow \text{we can't simplify but also can't have } \sqrt{3} \text{ in denom.}$$

use conjugate:

$$\frac{2+\sqrt{3}}{4-\sqrt{3}} \cdot \frac{4+\sqrt{3}}{4+\sqrt{3}}$$

multiply numerators  
(FOIL)  
then multiply denom.

$$\frac{(2+\sqrt{3})(4+\sqrt{3})}{16-3} = \frac{8+2\sqrt{3}+4\sqrt{3}+3}{13}$$

$$\boxed{\frac{11+6\sqrt{3}}{13}}$$

simplify