In this section we will discuss

* Adding and Subtracting Radical Expressions (Combining Like Terms)
* Products and Quotients of Two of Tow or More Radical Terms
* Rationalizing Denominators or numerators with two terms
* Simplifying Terms with Differing Indices

## Adding and Subtracting Radical Expressions (Combining Like Terms)

Def: When two radical expressions have the same indicies and radicands, they are called **like radicals**.

Like radicals are very much the same thing as like terms, in order to combine or add/subtract them, they must be alike.

Ex: Simplify

a) b) c) d)

## Products and Quotients of Two or More Radical Terms

Fortunately multiplying and dividing radicals is very much the same as multiplying and dividing with polynomials.

Ex: Simplify

a) b) c) d) e)

## Rationalizing the Denominators or Numerators

To rationalize the denominator means to make the denominator a rational number, which means to say

“Get rid of all radicals in the denominator”.

Recall what we had to do to Rationalize the Denominator/numerator if it consisted of only one term.

Now consider what we might do if the denominator or numerator had two terms.

Ex:

Recall this fact: or specifically, if then

Pairs of radical expressions of the form are called conjugates.

Ex: Find the conjugate of the following:

a) b) c) d)

Ex: Rationalize the part of the fraction that already has a radical.

a) b) c) d)Den: e)

Ex: Find

## Simplifying Terms with Differing Indices

If the terms you are multiplying have different indices, then just convert the expression to a base with a rational exponent.

Ex: Simplify

a) b) c)

Ex Find if