**SIMPLIFYING RADICALS**  =     =  

The three conditions for simplest radical form are:

* the radicand cannot have a factor that is perfect square larger than 1.
* the radicand cannot be a fraction or decimal,
* the denominator cannot contain a radical!

examples: Simplify

1.     b) 

When the denominator of a fraction is an irrational number, the denominator is a non-terminating and non-repeating number. It is impossible to divide by such a decimal number. The process or rewriting a fraction so that the denominator is not irrational is called ***rationalizing the denominator***.



examples: Simplify

1.      c) $\frac{1}{\sqrt[3]{5}}$

 b) 

**CONJUGATES**

* **conjugate** of **(a+b)** is **(a-b**) Ex: conjugate of $1+\sqrt{5}$is$1-\sqrt{5}$
* **conjugate** of **(a-b)** is **(a+b)**
* The product of conjugates (*a* + *b*)(*a* −*b*) is *a*2 − *b*2 .

example: Multiply  to its conjugate.

**Note that the product of binomial radical conjugates is a rational number.**

**DIVIDING RADICAL EXPRESSIONS**

Consider the division 6 ÷ ; this division results in the quotient 

This fraction is not in simplest form because there is a radical in the denominator.

example: Simplify 

* Use the conjugate to simplify

HW: p. 290 #6-11, 13, 14, 17, 19-20, 29

exercise: Simplify:

a) b)  c) 

exercise: Simplify  (Hint: multiply up & down by conjugate of denominator!)