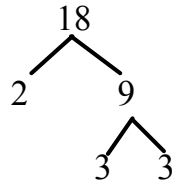# Chapter 9 - Factoring!!!!!

9-1 Factors and GCF's

- Find Prime factors of Integers & Monomials
- Find GCF's of Integers & Monomials

Do you remember Factor Trees?!?   Find the Prime Factors of 18.

```
        18
       /  \
      2    9
          / \
         3   3
```

Prime - _____

   Examples:

Composite - _____

   Examples:

┌───┐
│   │
│   0 & 1 -   │
│   │
└───┘

Ex 1) <u>Factor</u> each number. Then classify as prime or composite.

                 22   31   36

Ex 2) Find the <u>Prime Factorization</u> of the following numbers.

                 90   84   -132
       Method 1

       Method 2

┌──┐
│ * A <u>Negative Number</u> is factored completely when it is expressed as the product of -1 and prime numbers. │
└──┘

A monomial is in **Factored Form** when it expressed as the product of prime numbers and variables and no variable has an exponent greater than 1.

Ex 3) Factor each monomial completely.

$18 \, x^3 y^3$

$-26rst^2$

$12a^2b^3$

GCF - Greatest Common Factor
Two or more numbers may have some common prime factors.

- GCF of two or more integers- Product of Prime Factors common to the Integers
- GCF of two or more monomials- Product of their common factors when each monomial in factored form.
- <u>Relatively Prime</u> - GCF =1

Ex 4) Find the GCF of each set of monomials.

15 and 16

$36x^2y$ and $54xy^2z$