

FACTORING

Prime # - A natural #, other than one, that has exactly 2 different factors: 1 and itself

Composite # - A natural # that has factors other than 1 and itself

In other words: A composite can be divided by another number, a prime cannot!!!

To Reduce a Number

There are shortcuts in determining if a number is divisible by another number:

1. Even #'s are all divisible by "2"
2. To determine if a # is divisible by "3", add the digits up and if the answer is equal to a number divisible by "3", then so is the #.
Example: 12 108 1284
 $1 + 2 = 3$ $1 + 0 + 8 = 9$ $1 + 2 + 8 + 4 = 15$
3. Anything ending in a "0" or a "5" is divisible by "5"
4. To determine if a number is divisible by "9", follow the same rules as you did for the # 3, but the digits must add up to a # divisible by "9"
5. Anything ending in a "0" is also divisible by "10"

Factoring

1. Factoring – Factoring is simply a list of all of the possible factors of a given number

Example: 24 50 81
 $1 * 24$ $1 * 50$ $1 * 81$
 $2 * 12$ $2 * 25$ $3 * 27$
 $3 * 8$ $5 * 10$ $9 * 9$
 $4 * 6$

2. Prime Factorization – a # written as a product of only prime numbers:

- use the factor tree
- to do a tree, divide using the rules above until you have nothing but prime #'s

Example: 24 45 60
 ^ ^ ^
 6 4 9 5 6 10
 ^ ^ ^ ^ ^
 2 3 2 2 3 3 2 3 2 5

Prime factor = $2*2*2*3$ $3*3*5$ $2*2*3*5$