

*Division: $\frac{5x}{5y}$ is equal to $\frac{x}{y}$; 5x divided 5y is $\frac{1x}{y}$ however one is always imaginary before any variable and no need to write in the answer.

2. Combining (Adding or Subtracting) terms with different signs:

- ❖ $2x - x = x$; the answer is "x" and carries the positive sign because "2" is higher than "1". Take note that 1 is always imaginary before any variable in a certain expression. See "Rule of Signs" at the end of this topic, last page.
- ❖ $5x - 10x = -5x$; the answer is "-5x" and carries the negative sign because "10" is higher than "5". See "Rule of Signs" at the end of this topic, last page.
- ❖ $5y - 2y = 3y$; the answer is "3y" and carries the positive sign because "5" is higher than "2". See "Rule of Signs" at the end of this topic last page.

3. Multiplication of Algebraic Expressions

- ❖ $(7x)(10y) = (7)(10)(x)(y) = 70xy$; just multiply the constant value "7 & 10" then put x & y together if multiplying two or more terms with different variable value.
- ❖ $(7x)(10x) = (7)(10)(x)(x) = 70x^2$
 $(7y)(5y) = (7)(5)(y)(y) = 35y^2$; multiplying same variable value will be having a degree as shown below:

$$(x)(x) = x^{(1+1)} = x^2$$

$$(y)(y) = y^{(1+1)} = y^2$$

$$(x)(x^2) = x^{(1+2)} = x^3$$

$$(y)(y^2) = y^{(1+2)} = y^3$$

$$(x^2)(x^2) = x^{(2+2)} = x^4, \text{ etc.}$$

$$(y^2)(y^2) = y^{(2+2)} = y^4, \text{ etc.}$$

- ❖ Multiplying **different signs**, $(7x)(-10y) = -70xy$; multiplying different signs, the answer carries "-" negative sign always.

More Examples:

$$(7x)(-7x) = (-49)(x^{(1+1)}) = -49x^2$$

$$(7y)(-7y) = (-49)(y^{(1+1)}) = -49y^2$$

$$(-3x)(4y) = (-12)(x)(y) = -12xy$$

$$(-4x)(2y) = (-8)(x)(y) = -8xy$$