Short-hand

$4a$	$4\times a$
$3abc$	$3\times a\times b\times c$
ab^2	$a\times b\times b$
$(cd)^2$	$c\times d\times c\times d$

Rules of Sign

$(+)\text{x}(+) = +$

.....

$(+)\text{x}(-) = -$

.....

$(-)\text{x}(+) = -$

.....

$(-)\text{x}(-) = +$

$(+3a) \times (+2b) = +6ab$

$(+2a) \times (-4b) = -8ab$

$(-6a) \times (+3b) = -18ab$

$(-5a) \times (-6b) = +30ab$

$(+2a) \times (+b) = +2ab$

$(+a) \times (-3b) = -3ab$

$(-7a) \times (-5b) = +35ab$

$$\frac{+}{+} = +$$

.....

$$\frac{+}{-} = -$$

.....

$$\frac{-}{+} = -$$

.....

$$\frac{-}{-} = +$$

$$\frac{+5a}{+6b} = \frac{5a}{6b}$$

$$\frac{-3a}{+7b} = -\frac{3a}{7b}$$

$$\frac{+2a}{-3b} = -\frac{2a}{3b}$$

$$\frac{-a}{-4b} = +\frac{a}{4b} = \frac{a}{4b}$$

Terms - A term is a collection of letters and/or numbers multiplied together, with a '+' or '-' sign infront of it.

Terms are referred to as 'the term in ...' or 'the ... term'.

For example, '2y' is the term in 'y' or the '2y' term.

examples of terms... $+2x^2$ $-3xy$ $-5x$ $+6y^3$ -3

Simplifying/Collecting Terms - This involves grouping terms together and adding them.

Example #1

$+6x-2+x+7-3x-4$

$+6x+x-3x \qquad -2+7-4$

$+4x \qquad +1$

$+4x+1$

Example #2

$3x^2-2+2y-1+xy-3y-x^2$

$3x^2-x^2 \qquad +xy \qquad +2y-3y \qquad -2-1$

$2x^2 \qquad +xy \qquad -y \qquad -3$

$2x^2+xy-y-3$

Example #3

$5x^2-y+3-y^2+3y-2x^2+2y$

$5x^2-2x^2 \qquad -y+3y+2y \qquad +3 \qquad -y^2$

$3x^2 \qquad +4y \qquad +3 \qquad -y^2$

$3x^2+3+4y-y^2$