Rules with Positive and Negative numbers:

When adding or subtracting:

* If the 2 numbers are both positive, the answer will be positive
* If the 2 numbers are both negative, the answer will be negative
* If there is one positive and one negative number, compare the difference between the two, and the answer will get the sign of the bigger number

Think about it this way: If you have a room of people with positive attitudes, and more positive people walk in the room, the room is now even more positive! The same goes with negative people. But if there are some of each (some with positive attitudes and some with negative attitudes), the group with more people will win out. If there are 10 positive people and 7 negative people, the room will feel more positive overall (+3).

When multiplying or dividing:

* If the 2 numbers are both positive OR both negative, the answer will always be POSITIVE.
* If there is one positive and one negative number, the answer will always be NEGATIVE.

Note: Subtracting is the same as adding the opposite, so it may be easier to change all subtraction problems to addition to alleviate some confusion with subtracting with negatives.

Examples: $-7+\left(-12\right)=-19$ $15-\left(-1\right)=15+1=16$ $\frac{42}{-6}=-7$

You try: $-14+5$ $21+\left(-7\right)$ $-12-9$ $-24-(-3)$

 $-13(-2)$ $\frac{-36}{-4}$ $6(-8)$ $\frac{-60}{3}$

Order of operations, distributive property and multiplying binomials:

PEMDAS is really $PE\frac{M}{D}\frac{A}{S}$ ( ) first, then exponents, then EITHER multiplying or dividing (work left to right, whatever you see first), then EITHER adding or subtracting (left to right as well).

When distributing, take the outside term and multiply it by every term in the ( ).

When multiplying binomials, take the first term in the first ( ) by both terms in the 2nd ( ), and then repeat with the 2nd term in the first ( ). Combine like terms to simplify.

Examples: $2\*\left(15÷5\right)-5^{2}+11$ $8\left(x-3\right)-3(2x-9)$ $(4x-3)(3x+5)$

You try: $4-3\left(5\right)+2^{3}$ $26-4^{2}\*2+5$ $12÷2\*5+9÷3$

$2\left(7-3\right)+4^{3}÷32-14$ $-4\left(x-5\right)+5(x-1)$ $(x-6)(4x-7)$

Find the value of $3x^{2}-5x+2$ if $x=-4$ Find the value of $-2x^{2}-7$ if $x=-3$

Absolute Value: Do the math inside first (think of them like parentheses). The answer to an absolute value problem is ALWAYS positive. The only way to get a negative answer is if the negative sign is OUTSIDE the absolute value bars, then making your positive answer turn negative.

Example: $\left|-18+\left|-4+6\right|\right|$ = $\left|-18+\left|2\right|\right|$ = $\left|-18+2\right|$ = $\left|-16\right|$ = $16$

You try: $4-\left|7-10\right|$ $-\left|9-2\right|+\left|5-15\right|$

 $\left|-5\right|+\left|7-2(6)\right|$ $\left|\left|-11-(-2)\right|-16\right|$

Solve an absolute value equation: $\left|x-3\right|=5$

Write 2 equations: One set equal to 5, and the other set equal to -5. Solve for x.

$x-3=5 and x-3=-5$ Answers: $x=8 and x=-2$

You try: $\left|x+4\right|=9$ $\left|2x-3\right|=7$