

Algebra Rules v1.1

- 1. Subtracting a negative number is the same as adding a positive number of the same size.**

Example: $10 - -2 = 12$. This is the same as $10 - (-2) = 12$

- 2. A negative number subtracted from another negative number makes an even more negative number.**

Example: $-9 - 4 = -13$

- 3. Any number divided by itself equals one (1).**

Examples: $\frac{4}{4} = 1$ $\frac{37}{37} = 1$ $\frac{4x}{4x} = 1$ $\frac{2x+3}{2x+3} = 1$

- 4. I can multiply a factor by the number one (1) without changing the equation.**

Examples: $\frac{4}{4} * \frac{3}{4} = \frac{12}{16}$

- 5. A negative number multiplied by a positive number is negative. Also, a positive number multiplied by a negative number is negative.**

Examples: $10 \times -2 = -20$. This is the same as $10 \times (-2) = -20$

$-6 \times 3 = -18$. This is the same as $(-6) \times 3 = -18$

Also: $\frac{+a}{+b} = +\frac{a}{b}$ $\frac{+a}{-b} = -\frac{a}{b}$ $\frac{-a}{+b} = -\frac{a}{b}$ $\frac{-a}{-b} = +\frac{a}{b}$

- 6. A negative number multiplied by a negative number is positive.**

Examples: $-10 \times -2 = 20$. This is the same as $(-10) \times (-2) = 20$

$-6 \times -3 = 18$. This is the same as $(-6) \times (-3) = 18$

- 7. Variables cannot remain in the denominator ("no junk in the basement").**

Example: $10 = \frac{4}{x}$ Change the equation to $x = \textit{something}$

- 8. I can add, multiply, or perform any math operation to an equation as long as I perform the operation on *both sides* of the equation.**

Examples: $3 * \frac{x}{3} = \frac{11}{10} * 3$ $x * 10 = \frac{4}{x} * x$

- 9. LCDs are created by combining factors.**

Example: $\frac{5}{12} + \frac{7}{21} = \frac{5}{(2*2*3)} + \frac{7}{(3*7)} = \left(\frac{7}{7}\right) * \frac{5}{2*2*3} + \frac{7}{3*7} * \left(\frac{4}{4}\right)$