Some Commonly Used Visual Notations In Arithmetic
Math 101, Littlefield

Grouping

$(3+4)*5 = 7*5$	parentheses
$(8-[4-3])*5 = (8-1)*5$	square brackets (usually nested with parentheses)
$\dfrac{3+4}{5+6} = (3+4)/(5+6)$	horizontal division bar also groups
$\sqrt{9+7} = \sqrt{16} = 4$	everything under the horizontal bar of a radical
$|-3*6| = |-18| = +18$	absolute value — distance from zero expressed as a positive number
$4^{2+1} = 4^3 = 64$	everything in an exponent, before raising to a power

Multiplication

$3*4$	asterisk
$3 * 4$	centered star
3×4	centered cross
$3 \cdot 4$	centered dot
$3 \otimes 4$	cross in a circle (rare)
$ab = a \cdot b$	product of two single-character variables

Division

$\dfrac{3+4}{5+6} = (3+4)/(5+6)$	horizontal bar (which also groups!)
$3+4/5+6 = 3 + (4/5) + 6$	slash in single line (does <u>not</u> group)
$3 \div 4$	$\div$ is like slash, does not group
¾	common fractions, with small digits
$3 + {}^{4}\!\!\diagup_{5+6} = ???$	slanted bar with offset is ambiguous – avoid when writing!

Addition, Subtraction

3+4, 3-4	look Ma – only one notation!

Powers (exponents)

$4^3 = 4*4*4$	small raised number is the power, or exponent — the number of repetitions when the power is positive
$4^{-3} = \dfrac{1}{4^3} = \dfrac{1}{4*4*4}$	negative power means 1/(positive power)

Radicals

$\sqrt{16} = 4$	square root ($4^2 = 4*4 = 16$)
$\sqrt[3]{8} = 2$	cube root ($2^3 = 2*2*2 = 8$)