Equations Appendix

The following is an extensive (but not necessarily exhaustive) list of the examples of ways of indicating what cubes mean in Equations solutions. In some cases when a variation is not written the context in which a solution is written dictates which variations are used. When this is not clear the solution defaults to the situation as if a variation is not used.

Division	Variations	Examples	Default
EMJS	Sideways Cube	1/7, 7 sw, sw	Cube is right side up
EMJS	Upside Down	-7, 7 ud ud	Cube is right side up
EMJS	Zero Wild	2X(6+5) 0W	Every zero in a solution must have in writing what they are wild for. A zero in a solution without anything written stands for a zero.
EMJS	Sideways, Zero Wild	1/7, 0, 0, 0 sw/0W sw/0W7 1/7	Cube is right side up and zero = 0
EMJS	Upside Down,0 Wild	, -7, 7, 0, 0 0 usd/0W usd/0W -7 ₁	Cube is right side up and zero =0
EMJS	Multiple Operation		Write the operation sign as many times as needed in your solution. No special indication of Mult. Op. is necessary.
EMJS	Next Prime Number	5X8→Multiply,X67→Next Prime 7XX3 or7X(X3)→1st X Mult,2nd N XX8 or X(X8)→Both NP	Context dictates the interpretation of the X
EMJS	# of Factors		Same as Next Prime Number
E	LCM	8√2 LCM (must be indicated since ambiguous)	√ = root
E	GCF	9*2 or 9^2 GCF (must be indicated since ambiguous)	* or ^ = exponentiation
EM	Decimal Point (* or ^)	*23→Dec. Pt., 23*+5→Dec. Pt. 2*3→Default to power unless Player writes 2*3 or 2*3 DP	Context: If context does not determine, default to power (player must write Decimal Point)
EM	Percent	50 34, 50% of 34, 50√34 %	√ is right side up = root
M	Decimal Point/AB+	66+*5 is ambiguous so default to 66+to the power of 5	* or ^= Exponentiation
MJS	Powers of the Base	1 100 100 100 POB 1	1=one
MJS	AB+	No indication for + of repeating 45++5 45+5 Repeating Decimal Addition	Context dictates interpretation of +
JS	AB+, +=Average	Same as above	Context dictates
JS	AB+, Base 11 or12	66+*2 is ambiguous	Solution writer must indicate Interpretation of * which then Determines interpretation of +
JS	Base 11 or 12	7+*4= 100, 6**2 is ambiguous So write (6*)*2 which means (6*) to the 2 power or 6*(*2) which means 6 to the *2 power or 6* *2 Power ten	Context: If context cannot be determined, expression is ambiguous In Base 12, rules for √ are the same as * or ^
JS	Add to Goal	Solution writer must write the goal used for the solution if one or more cubes are added to the goal on the mat. If necessary, the solution writer must also explain orally how the goal can be obtained by individual moves from the mat to the goal; E.G. there is no way to obtain 23X0 from 23.	

S	Imaginary	|*4→| * 4	The default for placement is right-side up.
S	X Wild	See examples for Zero Wild	X=multiplication. Also see Note for Zero Wild
S	X Wild, Next Prime Number		Context determines
S	X Wild, # of Factors		Context determines
S	Division as Log	8÷2, 8Log2, $\log_2 8$ Log	Division=division,·|·=Log